PALESTINE

IMPERIAL INSTITUTE
12 MAR 1940

DEPARTMENT OF AGRICULTURE AND FISHERIES

ANNUAL REPORT

FOR THE YEAR

1938-39

(APRIL 1, 1938, TO MARCH 31, 1939)

PART II

REPORTS BY THE HEADS OF SERVICES

Price 150 Mils (for Parts I & II).

To be purchased from the Government Printer, Jerusalem,
or from the Crown Agents for the Colonies, 4 Millbank,
Westminster, London, S.W. 1, England.

PRINTED AT THE GOVERNMENT PRINTING PRESS, JERUSALEM.

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(The numbers refer to pages).

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One Palestine Pound (£P.)=One Pound Sterling.

One Dunum (metric)=1,000 square metres=0.2471 acre.

Throughout this report the term "Ton" means the metric ton of 1,000 kilogrammes.

REPORT

BY THE

CHIEF AGRICULTURAL OFFICER

FOR THE YEAR 1938-39

(April 1, 1938, to March 31, 1939)

SECTION I.

WEATHER CONDITIONS.

In reviewing weather conditions for a period based on the fiscal rather than the agricultural year which began in the spring of 1938, mention must be made of weather conditions preceding that date — that is to say the winter of 1937-38. The agricultural season opened very satisfactorily; abundant and comparatively well-distributed rains coupled with mild conditions gave rise to quick and strong growth of the cereal crops. A spring rain in the first week of April, 1938, assured the success of the summer crops. It was not, however, without its drawbacks. The outstanding meteorological feature was the high atmospheric humidity combined with warm conditions in spring and early summer. Occurring just when the wheat and oat crops were in their most vulnerable stage, a wide-spread attack of *Puccinia graminis* made itself strongly felt from Dan to Beersheba. The wheat crop which showed every prospect of being a very heavy one, yielded only some thirty per cent. of the average total crop.

2. Summer temperatures were normal with an absence of the hot *Khamsin* winds. The winter season of 1938-39 opened abnormally early with a general and heavy rain unfortunately attended by a good deal of flooding which caused heavy damage on the coastal plain to forage- and vegetable-crops. Subsequently, there was an excellent distribution of rainfall which, combined with a useful later rain, assured a fine harvest of winter cereals and a sufficiency of moisture for a correspondingly good summer crop. The expectations of a bountiful harvest are being realised in 1939.

CROPS.

Wheat.

3. The rainfall during the winter of 1937-38 was, both in quantity and distribution, such as to be beneficial to a wheat crop. A generally mild winter with sufficiently cold spells to harden the culms (an essential factor for the proper growth of the wheat plant) and an ample supply of sunshine to promote rapid growth in early spring, showed the wheat fields of Palestine at the end of March, 1938, in such a condition as to make the most pessimistic farmer sanguine of good harvest.

4. A general rain early in April, 1938, commonly known as the *Shita ed Dahab* (the golden rain) added to the assurance of a splendid crop. Warm conditions immediately following the fall brought disaster in an unprecedented attack of rust. Crops of 5 ft. in height carrying heads of more than average length would not pay for the reaping.

5. The total area under wheat for the year 1938 was computed, at a conservative estimate, to be two million dunums, which prior to the attack of rust gave every indication of yielding some 130,000 to 140,000 tons, but actually realised a total yield of only 40,000 to 44,000 tons the greater proportion of which was very poor quality. A consequent dearth of seed in the autumn of 1938 made imports from Trans Jordan, Syria, and Turkey, necessary.

6. The threat of war made it difficult to secure supplies from these sources, and it is estimated that the area under wheat in 1939 is from fifteen to twenty per cent. less than the normal. There is, however, a confident expectation that, notwithstanding the decreased area, the total yield should be well over 100,000 tons.

7. Prices throughout the year remained at a comparatively high level—ranging from £P.9.750 mils to £P.12.900 mils per metric ton. At only one period was there anything like a sensational rise which was in the third week of September, 1938—the threat of war and the embargo on exports from Syria increasing prices to as much as £P.14 per ton.

Barley.

8. A bad wheat year does not necessarily mean a bad barley yield and the crop for 1938 was but little, if at all, affected by the humid conditions, and yields were generally satisfactory. From an area of some two million dunums, a total yield of 66,000 tons was harvested with an excellent quality of grain.

9. The 1939 crop gives every prospect of heavy yields throughout the country. The increase in area, due to the shortage of seed-wheat, can be estimated at fifteen to twenty per cent. over the area of the previous year.

10. Owing to the good season and the very considerable stocks held over from the previous year, barley prices were low throughout the period under review. Standing at its highest in April, viz., £P.6.200 mils per ton, the price fell at the beginning of harvest to as low as £P.4.500 mils and remained at that level throughout the year.

Pulse Crops.

11. In order of importance, these crops may be put as lentils, *Karsanna* (*Vicia ervilia*), horse beans, lupins, and chickpeas. With the possible exception of lentils and chickpeas, they are sown principally as stock food and soil renovators in the fellah's rotation. There is ample evidence that vetch crops are gradually replacing *Karsanna*. Areas under the above crops were normal and yields almost reached those of 1937, notwithstanding the attack of fungus diseases.

12. The following table shows the yields, in metric tons, compared with those of the preceding year :—

TABLE I.

YIELD OF LEGUMINOUS CROPS.

	Year	
	1937	1938
	Tons	*Tons*
Lentils	3,830	3,278
Karsanna	6,004	5,374
Beans	1,529	1,325
Chickpeas	2,037	1,905
Lupins (*)	569	443

(*) Mainly used as green manure.

13. All types of leguminous grain were considerably lower in price than in the previous year. *Karsanna* varied between £P.7.500 mils to £P.8 per ton, and horse beans from £P.7.500 to £P.8.500 mils except in the southern districts where they touched £P.10 in early spring. Lentils always find a steady market at £P.8 to £P.8.250 mils a ton according to quality.

14. The crops during the year under review showed towards the end of it every possibility of a harvest equally as heavy as that of cereals. It is confidently expected that in view of the increased area under this type of crop, again due to the shortage of seed-wheat, the total yield for the country will be increased by some ten to fifteen per cent.

Forage Crops.

15. The growth of this type of crop as a whole is in the main confined to the Jewish settlements and is a most important feature in their agricultural work. The majority of the settlements, which depend on pumped irrigation for maintaining their supply of green forage and on dairying as the basis of their agricultural pursuits, are continually experimenting with various types of forage with a view to decreasing the cost of milk production.

16. In addition to the very appreciable area under *berseem*, and to a lesser extent lucerne, considerable advance has been made during the year with other types of fodder which have given very satisfactory results. These are sweet lupin, cowpea, ochrous pea (*Lathyrus ochrus*), *setaria*, and various types of peas and beans. The production of *berseem* seed locally has assumed such proportions as would indicate the possibility of starting an export trade. It is estimated that at least 80,000 dunums are under forage crops in the country. The hayfields, mainly confined to an oat and vetch mixture, account for 51,000 dunums, and maize second with 11,000 dunums. *Berseem* fields cover an area of almost 8,000 dunums and lucerne 3,500 dunums. Mangolds and pumpkins are not largely cultivated but do feature in the rotation.

17. The price for baled hay was usually steady at £P.3.500 mils a ton but dropped in summer to as low as £P.2.800 mils and showed a rise only toward the winter to £P.4.500 mils a ton.

Summer Crops.

18. The adequate rainfall during the winter of 1937-38, coupled with a cool summer following a good spring rain, contributed to the success of all types of summer crops grown.

Dura.

19. The dura crop was very heavy and prices remained at a remunerative level. The area under the crop, 950,000 dunums, was some 50,000 dunums less than that of the preceding year, but yielded a total crop of 61,000 tons equal to that of 1937.

Sesame.

20. The sesame crop covering an area of 117,000 dunums, though falling short in area of that which is usual after a good spring rain and abundant winter rains, gave a total crop of 4,000 tons. The drop in area was due in the main to the fact that farmers were unable to get on to the land to plough it sufficiently owing to the continued heavy rains in late winter and early spring.

21. Probably due to the above-mentioned decrease in area, sesame fetched from £P.18 to £P.20 a ton throughout the year.

Maize.

22. Unirrigated maize crops, which are largely grown in the northern inland plains, gave very heavy yields, as did also the irrigated crops in the Hula basin. The total area under maize for seed was 84,000 dunums giving a total crop of 8,000 tons.

23. This crop showed the least fluctuation in prices of any, selling at £P.6.750 mils to £P.7.250 mils throughout the year.

Melons.

24. Notwithstanding the difficulties placed by neighbouring countries on the import of melons, the area rarely decreases appreciably, and in the summer of 1938 yields were quite satisfactory and prices remunerative. The sandy areas of the coastal plain, with a late crop sown on the heavy soils further north, account for an area of 160,000 to 170,000 dunums giving a yield of 103,000 tons of fruit.

Vegetables.

25. The continued demand for good quality vegetables caused by the increasing urban European population is conducive to a steady expansion of the already very appreciable areas so cultivated. The recent developments on mixed farms and increased irrigation facilities have largely increased the output of types of vegetables grown generally. Good organization of marketing, coupled with good grading and packing of vegetables, has also contributed very materially to increased returns to farmers.

Potatoes.

26. Potatoes are rapidly becoming one of the most important crops of the country; and liftings, especially on the coastal plain, were very heavy from the winter-, spring-, and autumn-sown crops. Palestine is not, however, yet able to produce her total requirements, and imports are still necessary. The marketing problem when abundant supplies are available in early summer is being overcome by the assistance of the various co-operative societies in the larger centres. It is confidently expected that the very appreciable area of 9,500 dunums sown to this crop in 1937 will be increased in the current year by at least twenty per cent.

27. Continued departmental and co-operative varietal trials show that seed from the United Kingdom and Ireland is still the most suitable for this country. Trial shipments of new potatoes to the United Kingdom have given promising results. The total yield for 1938 can be computed at about 12,000 tons as against 9,000 tons in the preceding year.

28. The import tariff of £P.3 per ton in certain months of the year had a steadying influence on the potato market. Local growers were securing very remunerative prices for early potatoes in March and April, 1938, which were fetching from £P.9.500 to £P.11.500 mils a ton. Summer prices ranged between £P.6 and £P.8 a ton, with a rise to £P.9.500 mils in the winter months.

Tomatoes.

29. Among the vegetable crops the tomato comes next to the potato in order of priority. No considerable increase in area was noted during the year under review, but it is estimated that from 40,000 dunums a total crop of some 30,000 tons is produced. The dwarf varieties have proved very promising as heavy yields were produced and are especially suited for export purposes. Trial shipments of this vegetable to the United Kingdom have also given good results on the London market. Restrictions on imports from neighbouring countries keep prices fairly remunerative and protect growers, especially in the irrigable areas of the Jordan Valley, who have crops ripening in autumn and winter.

30. Of all the crops, tomatoes show the greatest variation in prices. £P.22 a ton is not an unusual figure for this vegetable in March and April when production is limited to certain areas, while in the midsummer months and up to December farmers can only get from £P.5 to £P.6 a ton.

Other Vegetables.

31. Cucurbitaceous field crops, largely cultivated on the coasal plain, account for an area of some 30,000 dunums. Next in importance is the onion and garlic crop, covering an area of some 22,000 dunums. A further 50,000 to 55,000 dunums are under the usual summer and winter vegetables, namely, eggplants *Bamya* (*Hibiscus esculentus*), cabbage, cauliflower, lettuce and roots. The total production of all kinds of vegetables was in the vicinity of 130,000 tons, valued at approximately £P.500,000. Although imports from Egypt do not appreciably affect the market, the same cannot be said of those from Syria.

Tobacco.

32. The area allowed to be planted in 1938-39 was 30,000 dunums. That limit was almost reached. Repeated requests from fellahin in southern Palestine for permission to plant were refused, as it was evident that these requests had as their object the illicit disposal of the crop. The favourable weather conditions of summer, following good winter and spring rains, assured a satisfactory crop. The total yield was estimated to be in the vicinity of 1,000 tons. Overproduction in past years has resulted in considerable stocks always being kept by farmers until the following season, or destroyed by Excise Officers; and the year under review was no exception. The whole of the 1937 crop was not utilised in 1938, and, with the disturbances, practically none of the 1938 crop has yet been disposed of. The present plantings cover an area of some 20,000 to 25,000 dunums and are in a very healthy forward condition.

AGRICULTURAL STATIONS.

General.

33. Of the five larger agricultural stations of the Agricultural Service, those at Majdal and Farradiya were totally destroyed. At the latter station, crops were burnt as they ripened, fencing was destroyed, and buildings were dynamited; while at Majdal, although the cereal crops were reaped and bagged, the grain was partly destroyed in transit to storage depots. Subsequently, all buildings at the Majdal Agricultural Station were destroyed, and the agricultural implements, pump, engine, and well, were either burnt or dynamited. Another of the hill-stations — 'Ein 'Arrub, lying between Jerusalem and Hebron — was also destroyed but not before the harvesting of the cereal and leguminous crops was completed. Notwithstanding the attack of rust, an average yield of seventy kilogrammes of wheat per dunum, or about nine bushels per acre, was reaped. At Beisan, by reason of the early ripening conditions in that locality, the personnel of the Service were fortunate in being able to reap and thresh the crops and transport the resulting grain with all the implements to the Acre Agricultural Station before complete evacuation took place.

Acre Agricultural Station.

34. Work proceeded at the Acre Agricultral Station throughout the season as a strong force was stationed in the precints of the farm buildings and some police protection was given. A total of 1,483 dunums was under cereals and hay crops, and 400 dunums under maize. The heavy attack of rust did not leave the station crops unaffected, and considerably reduced yields with an attendant poor quality

of grain resulted. On the other hand, heavy crops of barley of excellent quality were harvested and stored. The hay crop was surprisingly good. The maize crop, had it not been for the depredations of bandits, would have been a heavy one. Over 16½ tons of wheat were harvested and 8¾ tons distributed. Of the 46¼ tons of barley harvested, 43½ tons were distributed or sold.

35. In the experimental fields work was carried on under armed protection.

Variety Tests and Seed Breeding.

36. Yielding trials and observation plots were laid down (124 plots of wheat, 172 of barley, and 16 of oats).

37. Sufficient quantities of selected strains of wheat were obtained for sowing 270 dunums of agricultural station lands. The first three strains of selected barley to be released by the Acre Agricultural Station for propagation were issued to eleven seed farms. These three strains are: M37, M38, and F10, to be named henceforth Acre Earliest, Acre Six-Rowed Early, and Acre Upright, respectively. Such a high quality grain has not been seen in the country, and the demand for it is heavy.

Vetch-and-Oat Trials.

38. Various combinations of vetch and oat varieties were tested. Outstanding results were obtained from *Vicia atropurpurea* (as regards growth only — not seed) and the Australian oat varieties Mulga and Buddah.

Rotation Experiments.

39. These experiments were discontinued as a military road was built through the experimental field.

Fertilizer Experiments.

40. Fertilizer experiments on wheat and vetch-and-oats were continued, but no results were forthcoming as the experimental area had been badly water-logged.

Duty of Water Experiments.

41. Duty of water experiments on lucerne, maize, cowpeas, and *setaria*, were continued and concluded. Results from a series of years are both interesting and significant.

Berseem.

42. A detailed study of the water and fertilizer requirements of *berseem*, the most suitable dates of planting, and the influence of origin on seed, has been established. Interesting results were obtained from the first season's work, which is being continued.

Pasture Plants.

43. Investigations with pasture plants were continued. *Paspalum dilatatum* and *Chloris gayana* still remain the most promising types. Interesting results were obtained with *Panicum maximum*, *Pueraria thumbergiana*, and *Paspalum vaginatum*.

Introduction of New Crops.

44. Pigeon peas grew extremely well, and further investigations are in progress. Several varieties of spineless cactus were planted and are developing very well. Trials with purple vetch are being carried out with a view to securing a strain which will flower and seed.

Cowpea Varietal Tests.

45. Ten varieties were tested. Brabham continues to give the highest yield of green forage. Very interesting is the Poona variety from Australia, being small-seeded, upright and of rapid growth, even-flowering and giving an abundant production of seed.

Maize Varietal Tests for Green Fodder.

46. Locally-grown Boesman appears to have deteriorated considerably. Outstanding yielders were Mexican June and Ensilage. Further imports of seed have been made from South Africa.

Vegetable Section.

47. Selection work was carried out on the lines shown in the following table for yield, earliness, uniformity, suitability for export, keeping qualities, and resistance to disease. Many other varieties of all vegetables are grown, but experimental work is confined mainly to those mentioned below:—

TABLE II.

VEGETABLE SELECTION WORK.

Vegetable	Variety	Method of Work
Tomato	la Marmande Selection E	Single plant selection.
Beet	Crimson Globe	Group and single plant selection.
Carrot	Nantes	Group and single plant selection.
Cauliflower	Six weeks	Group selection.
Musk melon	Baladi (native) Golden Standard	Single plant selection.
Lubya	Blackeye	Hybridisation.
Onion	Bermuda	Group selection.

Jericho Agricultural Station.

48. At Jericho, very considerable damage was done to buildings and implements. This station was, however, kept open during the season under review as there was adequate military and police protection in the town. Heavy yields of soft-grain wheats and strains of local barleys are confidently expected. The vegetable section has not given as good results as usual.

49. Field operations were carried on, after the occupation by the troops, with few interruptions. Apart from its value as a very useful demonstration medium at Jericho, the station is an important source for distribution of selected cereal grain, and vegetable seedlings, for the Jordan Valley as far as the Nablus boundary. It is also a not unimportant revenue-producing centre for the Department. From a comparatively small area of only sixty dunums, the revenue for the year under review amounted to £P.126. It is intended, if possible, to reopen all stations in the autumn of 1939.

Co-operative Field-Work.

50. Unfortunately, owing to the disturbances, demonstration work and co-operative field trials in Arab villages had to be suspended for the year. Any grain which was issued prior to the serious outbreak of violence may have to be written off as the greater proportion of the cereals in villages were commandeered by armed bands. In the Jewish settlements, however, co-operative experiments were continued without a break, and the following trials can be classed as both demonstrational, on account of the appreciable areas laid down, and at the same time experimental:—

(a) Experiments on the irrigation and application of fertilizers on potatoes.
(b) Variety trials with potatoes.
(c) Fertilizer trials on tomatoes.
(d) Irrigation and fertilizer experiments with *berseem* and lucerne.
(e) Experiments on the irrigation of maize.
(f) Tests with artificial pastures under irrigation.
(g) Co-operative seed farms on which selected varieties and strains from Acre are supplied — the quantity of grain issued being returnable in kind after harvesting.

51. The results of the first year's trials of the above experiments have already been compiled, and the tests are being continued. All experiments are laid out in randomized blocks.

52. Prior to the outbreak of the disturbances, some forty-three tons of grain had been distributed, that is to say, in the sowing season 1937-38. Since the lessening of the disturbances, a further thirty-one tons of grain have been issued. Notwithstanding the very unsatisfactory conditions obtaining in the country, nearly half a million vegetable seedlings and some 200 kilogrammes of vegetable seed were distributed throughout the year.

SEED TESTING.

53. It has become increasingly evident that a seed-testing bureau for Palestine is very necessary. In conjunction with the officers of the Agronomy Division of the Jewish Agency Agricultural Research Station at Rehovot and the Jewish Agricultural Workers Organisation, this Service has established seed farms in various settlements. Appreciable areas have been sown with selected strains and varieties emanating from both Acre and Rehovot stations. The seed farms are under the supervision of extension officers of the Agricultral Service and the Rehovot Agricultural Research Station, and the quantity of grain issued is returned in kind after harvest. Crops in this category for the year under review are barley, maize, wheat, and berseem. In addition to inspection in the field for impurities and disease, germination tests will be made and the resulting grain distributed under guarantee to various settlements for further propagation.

PLANT PATHOLOGY.

54. In collaboration with Dr. I. Reichert, of the Jewish Agency Agricultural Research Station, Rehovot, the suppression of plant diseases has received unremitting attention throughout the season, and work is being continued.

MARKETS.

55. At only one period during the year under review have the markets shown anything more than a normal fluctuation. In September, 1938, cereal prices appreciated somewhat mainly owing to a complete stoppage of exports from Syria. Generally, throughout the year, prices of agricultural commodities remained steady and on the whole at a moderately high level.

G. G. MASSON,
Chief Agricultural Officer.

Jerusalem, May 15, 1939.

REPORT

BY THE

CHIEF HORTICULTURAL OFFICER

FOR THE YEAR 1938-39

(April 1, 1938, to March 31, 1939)

SECTION II.

THE CITRUS INDUSTRY.

Area Under Citrus.

56. There has been little or no development in the way of new plantings during the year although an area estimated at approximately 1,500 dunums of grapefruit has been top-worked with Valencia oranges, lemons, etc. The estimated total area under citrus is approximately 299,500 dunums. The general survey of citrus groves was continued so far as security conditions permitted, and the data collected were summarised by the Department of Lands and Surveys. A total of 257,014 comprising 208,507 dunums of orange groves, 29,251 dunums grapefruit, 4,969 dunums lemons and 14,287 dunums other citrus has now been surveyed. Approximately 1,120 dunums of oranges, 200 dunums grapefruit, and 40 dunums lemons and other citrus, were damaged or destroyed by acts of sabotage during the year; and many packing sheds, pumping plants, and packing materials, were destroyed.

The Citrus Crop and its Distribution.

57. The weather was generally favourable throughout the entire blossoming and export seasons and, in the absence of wet periods of any great duration, the crop was in good condition and did not exhibit severe waste.

58. A new record crop of 15,310,436 cases was exported, as compared with the estimate of 13½ million cases and an actual export of 11,415,490 cases in the previous year.

59. The composition of the exported crop as compared with that of the last four seasons is shown hereunder:—

TABLE III.
COMPOSITION OF CITRUS EXPORTS.

	Season 1934/35	Season 1935/36	Season 1936/37	Season 1937/38	Season 1938/39
	Cases	*Cases*	*Cases*	*Cases*	*Cases*
Oranges	6,507,995	4,997,302	9,166,904	9,512,987	13,055,400
Grapefruit	791,661	850,120	1,542,046	1,809,808	2,066,833
Lemons	30,058	46,915	70,792	80,779	142,243
Other citrus	1,132	2,973	10,368	11,916	45,960

60. The United Kingdom, as usual, took the greater part of the export crop, viz., 8,988,028 cases, or 58.7 per cent. of the total exports. This was 2,079,043 cases more than in 1937/38. There was an appreciable development in some of the continental markets. The total amount of cases of citrus absorbed by continental countries was 6,261,727, or 40.9 per cent. of the total exports. Compared with last

season's figure, this showed an increase of 1,943,311 cases. Holland, Belgium, Sweden, France, Poland, and Norway, were the leading countries on the continent in the consumption of Palestine citrus, all of which showed notable increases in the total imports of Jaffa oranges and grapefruit as compared with last season. A sharp decline was experienced in the exports to Czechoslovakia, Austria, and Germany.

61. The following tables show the distribution of the citrus-fruit export crop during the 1938-39 season :—

TABLE IV.

QUARANTINE OF CITRUS FRUIT EXPORTED FROM PALESTINE DURING THE 1938-39 SEASON.
(June 1, 1938, to May 31, 1939).

Country of Destination	Total	Oranges	Grapefruit	Lemons	Other Citrus Fruit
	Cases	Cases	Cases	Cases	Cases
British Empire					
United Kingdom	8,988,028	7,878,691	1,031,298	50,083	27,956
Aden	3,300	3,028	239	33	—
Australia	7,916	1,693	5,693	530	—
India	7,712	2,152	5,293	267	—
Canada	12,733	10,599	2,134	—	—
Ceylon	1,051	540	402	109	—
Eire	649	471	223	—	—
Malta	1,114	467	642	—	5
Tanganyika	56	—	50	—	6
Burma	1,085	930	155	—	—
Other British Possesions	5,158	2,047	3,061	20	30
Continent of Europe					
Austria (*)	712	712	—	—	—
Belgium	1,132,462	849,447	266,187	14,028	2,800
Bulgaria	44,504	43,428	1,000	76	—
Czechoslovakia	111,821	93,881	17,445	340	155
Denmark	117,089	99,844	15,535	1,087	623
Finland	149,398	141,435	6,902	757	304
France	596,192	305,723	279,376	10,634	459
Germany	115,227	75,816	38,591	820	—
Greece	1,130	1,130	—	—	—
Holland	1,612,706	1,511,349	93,722	5,074	2,561
Hungary	37,711	31,726	5,620	300	65
Italy	152	—	152	—	—
Latvia	28,090	26,338	1,749	—	3
Lithuania	47,729	41,551	4,170	1,978	30
Norway	393,541	357,108	33,215	2,990	228
Poland	493,701	446,057	36,599	650	8,395
Rumania	311,942	210,835	50,371	49,135	1,601
Sweden	857,458	799,281	56,442	1,283	452
Switzerland	122,985	23,865	98,763	104	253
Yugoslavia	37,142	31,638	5,368	136	—
Other European Countries	50,035	48,558	887	569	21
Other Continents					
Egypt	9,530	5,896	3,240	391	3
Arabia	6,040	5,962	53	25	—
China	310	90	40	180	—
Iran	802	444	358	—	—
Syria	737	426	262	39	10
Turkey	1,508	142	1,261	105	—
Other Asiatic Countries	125	100	25	—	—
Argentine	800	—	300	500	—
United States of America	10	—	10	—	—
	15,310,436	13,055,400	2,066,833	142,243	45,960

(*) As from January, 1939, the exports to Austria were added to Germany.

TABLE V.

QUANTITY OF CITRUS FRUITS EXPORTED IN BULK FROM PALESTINE DURING THE 1938-39 SEASON.

(June 1, 1938, to May 31, 1939).

Country of Destination	Total	Oranges	Grapefruit	Lemons	Other Citrus Fruit
	Kgs.	Kgs.	Kgs.	Kgs.	Kgs.
Syria	9,626,288	9,352,573	221,784	51,931	Nil

MARKET REPORTS.

Lemons.

62. The crop was a record one, the fruit of good quality and in considerable demand on the continent and in the United Kingdom. The first consignments were exported on August 19, 1938. Small quantities moved steadily thereafter throughout the season. Prices of 11*s.* and 12*s.* per case f.o.b. were paid for fruit sold in advance during August and September. In October, prices in the United Kingdom, according to count, ranged from 8*s.* 9*d.* to 13*s.* 3*d.*; in November, 7*s.* to 17*s.* 6*d.*; in December, 9*s.* to 10*s.*; in January, 1939, 8*s.* 6*d.* to 11*s.* 6*d.*; in February, 5*s.* 6*d.* to 13*s.* 6*d.*; in March, 6*s.* to 9*s.*; and in April, 7*s.* 3*d.* to 9*s.*

63. Average net returns to growers, by co-operative societies, for the season are stated to be about 3*s.* per case.

Grapefruit.

64. The grapefruit season started as usual on October 1, 1938. A few small consignments which had passed the necessary maturity tests were, however, allowed to be exported before that date. Considerable quantities were shipped in October and November to continental and United Kingdom markets, and the first prices were quite good, averaging from 11*s* .to 13*s.* per case. The fruit was as mature as usual and possessed the minimum of colour permissible; the skins, moreover, were rough and thick. As a result the fruit remained unsold and prices dropped to low figures which in most cases represented a loss to growers and exporters. In November, prices in the United Kingdom, according to count, ranged from 7*s.* to 11*s.*; in December, 5*s.* 6*d.* to 12*s.* 6*d.*; in January, 5*s.* to 10*s.*; in February 6*s.* to 12*s.*; the upward tendency taking place as from the middle of the month. In March, prices continued to improve and reached a profitable level of 8*s.* 6*d.* to 14*s.* 6*d.* per case but dropped again in April to 6*s.* 9*d.* — 12*s.* 6*d.*

65. The co-operative societies estimate that grapefruit shipments for the season will represent a loss to growers of about 1*s.* per case.

66. Although actual production has increased considerably in the last few years, the low prices generally obtained discouraged export, particularly early in the season, and also induced a reduction by top-working in the area under grapefruit.

Oranges.

67. There was no change in the opening date of the orange season, and exports were allowed as from November 20, 1938. A few small consignments only, which had passed maturity tests, were shipped previously. The condition of the crop was generally quite good and better than that of the last few years although some wastage began to appear late in the season.

68. All the principal markets on the continent and the United Kingdom were served with larger quantities than usual at the beginning of the season since the crop was more advanced than usual. Despite the large quantities, early fruit realised fair prices: large fruit, 9*s.* to 9*s.* 6*d.* per case; medium, 11*s.* to 13*s.* 6*d.*; and small, 11*s.* 6*d.* to 13*s.* 6*d.* These prices continued fairly steady until the end of December, 1938, dropping early in January, 1939, to 6*s.* 3*d.* — 10*s.* 3*d.* and remaining at this low level up to February, 15th. This condition was attributed mainly to the markets being overstocked and to the intensely cold weather prevailing in Europe during January and February. From the middle of February onwards, a temporary restriction in exports due to the aforementioned facts (low prices and adverse weather conditions) caused an improvement in prices. In March, prices continued to improve and fruit realised 6*s.* 6*d.* to 16*s.* 6*d.* per case; and in April, 7*s.* to 17*s.* 3*d.* per case.

69. The co-operative societies expect to return to growers about 2*s.* 6*d.* per case for oranges.

Handling and Transport.

70. The handling of the increased crop was carried out with much less difficulty than was anticipated, although the state of insecurity of the country seriously dislocated normal arrangements for picking the crop. The Jewish section of the trade is accustomed to using Arab labour in certain areas, which, under the existent conditions, was not available; and untrained Jewish labour had to be substituted. There was a strike of Arab labour at the beginning of the season, frequent curfew restrictions were imposed in Arab areas, and the movement of railway traffic was limited to the daytime. These factors affected normal methods of transport and the movement of picking gangs, and caused some increase in costs of production. Fortunately, the latter was offset by the reduced cost of packing materials and lower rates for ocean freight, which were 1*s.* 5*d.* per case for unrefrigerated and 2*s.* 2*d.* for refrigerated ships to the United Kingdom Considerable credit is due to the railway authorities for the efficient way in which the heavy crop has been transported under particularly difficult conditions. Transport from the groves was favourably assisted by the weather.

71. Shipping facilities during the season presented very difficult problems and resulted in some congestion and accumulation of fruit at the ports. The distribution of steamers throughout the season was very irregular with the result that during a certain period, between twenty and thirty boats were waiting for loading whereas at other times a shortage of boats was noticeable.

72. The movement of fruit from the three ports, as compared with the last four seasons, is shown below:—

TABLE VI.

CITRUS FRUIT EXPORTS (BY PORTS).

Port	Season 1934/35	Season 1935/36	Season 1936/37	Season 1937/38	Season 1938/39
	Cases	*Cases*	*Cases*	*Cases*	*Cases*
Haifa	2,953,392	2,242,609	6,671,724½	6,305,057	8,620,384
Jaffa	4,212,649	3,478,898	3,605,514½	3,929,826	4,543,265
Tel Aviv	—	—	366,327	1,020,780	2,087,626

73. The additional shed-space at the Haifa and Tel Aviv ports greatly facilitated handling and storage prior to shipment. There were eight sailings of refrigerated ships.

74. The proposals of the Citrus Transportation and Marketing Committee for the control of fruit carrying ships are still under consideration.

Citrus Fruit Inspection.

75. The work of citrus fruit inspection has continued, despite the disturbed conditions, without any serious difficulty. It was, however, necessary, for reasons of security, to limit the places of inspection to the large railway stations and ports only.

76. Some changes were made in the system in force at the Jaffa port this season, for the purpose of relieving the congestion in the main transit shed and for giving more privacy to the work of inspection. All inspection and packing were restricted to one shed which was not used for ordinary fruit storage. This change entails the disadvantage that there is no complete off-loading when selection of the cases for inspection is made, but it appears to have worked satisfactorily as the standard of fruit coming forward was much better than for the first few years after fruit inspection started.

77. The inspection staff at the Haifa and Tel Aviv ports was considerably strengthened owing to an increase in the quantity of fruit proceeding by road which had to be inspected on arrival.

78. The general quality of fruit presented for inspection has shown some improvement over the previous season, but there is still much room for improvement in the selection of fruit for packing. Greater care in the handling of fruit should be taken, as many of the consignments have been spoiled by rough handling and the use of unsuitable field boxes which resulted in mechanical damage to the fruit.

79. A total of 374,440 cases, or 2.5 per cent. of the total exports, was rejected after inspection, of which 320,212 cases were repacked under the supervision of fruit inspectors, 35,191 cases being discarded in the process. The main causes for rejection this season, in percentages of the total number of cases rejected each month, are shown in the following table:—

TABLE VII.

MAIN CAUSES OF CITRUS FRUIT REJECTIONS EXPRESSED AS PERCENTAGES OF THE TOTAL MONTHLY REJECTIONS.

Cause of Rejection	November 1938	December 1938	January 1939	February 1939	March 1939	April 1939
	%	%	%	%	%	%
Mechanical injuries	7.4	13	24.4	34.2	43	27.7
Waste	0.5	6.5	9	22.3	26	47
Rough skin	26	15	9	6.3	5.4	1.3
Nuqsan (Physiological break-down)	2	7.1	12	12.2	6.7	5.3
Irregular sizing	7	14	9	6	4.3	3
Fumagine	2	5	5.8	7	5.5	4.6
Bruised fruit	12	11.5	8.1	2.5	0.2	—
Mediterranean fruit-fly	2.4	3.6	3.5	1.4	0.6	2
Red scale	1.7	4.1	2.9	0.4	0.3	0.8
Mussel scale	2.3	2.7	1	1.4	1.7	0.3
Orange-rind-boring-moth (*Cryptoblabes gnidiella*)	2.4	0.6	0.6	0.3	0.1	—
Other causes	34.3	16.9	14.3	6	6.2	8

80. Following the annual custom of gradually improving the standard of citrus exports, the Citrus Fruit Committee gave careful consideration to a revision of the Citrus Fruit Export Rules. The principal amendments in the revised rules, dated August 31, 1938, further limit the number of sizes of cases for oranges and grapefruit and give power to fruit inspectors to prohibit the export of fruit which is either imperfectly wrapped or the wrappers of which have become wet. The packing method is restricted to what is known as the "American" system. Further powers are given to enforce cleanliness in citrus groves and their vicinity and to destroy fruit which is found to be totally unfit for export. A further amendment was found necessary during the season to provide for certain counts of Valencia oranges being packed in a somewhat larger case. This amendment came into force on February 14, 1939.

Citrus Statistics.

81. The usual weekly service of statements of exports was continued to the Imperial Economic Committee, the trade, and other interested parties; and monthly statements were issued in the *Agricultural Supplement to the Palestine Gazette.*

82. A summary of the information contained in the consignment notes presented to the Fruit Inspection Service shows the number of cases exported in the various count-categories for oranges and grapefruit to be as follows:—

TABLE VIII.

EXPORTS OF CITRUS FRUIT, BY COUNT, DURING THE 1938-39 SEASON.

Oranges		Grapefruit	
Count	Number of Cases exported	Count	Number of Cases exported
120	2,058,108	64	93,921
150	3,622,295	80	954,171
180	4,282,889	96	746,213
210	1,772,270	112	328,668
240	774,106		
270	6,795		
288	24,526		
294	203,712		

Research into Citrus Fruit Wastage.

83. The reports by the Department of Scientific and Industrial Research, London, and the Jewish Agency Agricultural Research Station, Rehovot, on the scheme of wastage research undertaken in 1937-38, have been received since my annual report for 1937-38 was written. These emphasise the heavy wastage which occurs in shipments of Palestine oranges and refer to measures which may be taken for reducing it. It is evident that much further study of the problem is needed. A programme of work for 1938-39, estimated to cost £P.2,500, was arranged in consultation with the Jewish Agency Agricultural Research Station, Rehovot, and it is believed that this will find useful application in any further investigation of the problem of transport to markets abroad. This research is financed from the Citrus Fruit Advertising Fund. A brief summary of the reports referred to above and the main features of the programme for 1938-39 were published in the *Agricultural Supplement to the Palestine Gazette* for March, 1939.

Citrus Fruit Committee.

84. Four meetings of the Citrus Fruit Committee were held at which the principal matters discussed were amendments to the Citrus Fruit Export Rules, citrus statistics, fruit inspection, and duties and restrictions on markets abroad.

Citrus Fruit Advertising Committee.

85. Nine meetings of the Citrus Fruit Advertising Committee were held at which the programme of advertising and citrus wastage research for 1938-39 were reviewed. Advertising was successfully carried out in the United Kingdom, Holland, France, Rumania, Poland, Belgium, Sweden, Norway, Finland, Czechoslovakia, Switzerland, Hungary, Yugoslavia, Latvia, Lithuania, and Estonia, at a total cost of £P.36,000; this being allocated according to the importance of the markets, either actual or potential. The campaign included a coloured scenic film of the Holy Land, a purely advertising film, broadcasting, and press advertising on the Continent of Europe; and poster and other display material, the canvassing of retailers, hotels, restaurants, etc., in the United Kingdom. Continuing the efforts made in previous years to encourage the consumption of fresh orange- and grapefruit-juice in Palestine and Syria, 6,000 citrus-fruit squeezers were distributed in these two countries. The rate of fee collected under the Citrus Fruit Advertisement Ordinance was changed from 3½ mils to 2½ mils per case commencing on August 1, 1938.

Government Relief to the Citrus Industry.

86. A further reduction was granted in respect of the Rural Property Tax on citrus groves, the rate being 40 mils per dunum (instead of 410 mils) in the Acre Sub-District and 400 mils per dunum (instead of 500 mils) in other parts of the country. The drawback in respect of imported wood used in the construction of citrus cases was increased from 2½ mils to 3½ mils per case as from October 1, 1938. Both measures gave a much needed assistance to the citrus fruit industry.

FRUITGROWING.

Deciduous Fruits.

87. Fruit planting sustained a serious set-back during the year due to a number of causes including the prevailing insecurity in the country, depressed economic conditions, and the prevalence of insect pests such as *Capnodis*, Mediterranean fruit fly, nematodes, codling moth, etc. In the plains, some development took place particularly as regards apples and plums. In the hills, new plantings were small and most of the extensions took the form of sowing almonds *in situ* for subsequent budding to stone fruit.

88. The cold weather in the winter of 1937-38 was generally favourable to deciduous fruit trees; blossoming was profuse. Early varieties of stone and pome fruits set good crops, but the later-blossoming varieties of pears and plums were damaged by *Khamsin* winds of flowering time. Cool weather conditions in April, May, and June, generally delayed the fruit ripening by about two weeks.

89. Yields varied considerably in the districts. The apricot crop was good in Jerusalem district but rather low in others. Kelsey, Santa Rosa, Wickson, and Japanese plums, bore well. Peaches were badly infested with Mediterranean fruit-fly. Most apple varieties in the plain of Jezreel yielded well. In the hills the crop was below normal. Apples were badly attacked by codling moth in all areas. Quinces produced good crops.

90. Prices during the crop season fluctuated considerably, although the demand for local fruit at reasonable prices was generally better than usual owing to some curtailment of Syrian imports as a result of the prevailing insecurity. Large-sized, neatly-packed Japanese plums, and plums and apples kept in cold storage fetched good prices. Quinces met with competition from imported fruit, and prices were as low as 5 mils a kilogramme. It is understood that some growers in the Plain of Jezreel are contemplating the erection of a small refrigerated store for deciduous fruits.

91. Weather conditions in the winter of 1938-39 were not favourable to proper dormancy in deciduous fruits, and it is feared that there may be some adverse effects on subsequent growth and blossoming.

Olives.

92. Weather conditions during the flowering and setting period in the spring of 1938 having been favourable, a good crop resulted. It was particularly good in the Jerusalem and Samaria districts. The crop was picked rather later than usual, resulting in a higher yield of better-quality oil. Olive fly caused heavy losses owing to the fruit being kept longer on the tree. Better methods of picking were adopted and many thousand of tins of pickled olives were offered on the local market and fetched good prices. Fairly large quantities of locally-grown pickling-varieties such as Ascolano, Sevillano, Manzanillo, Merhavya-Bitanya, and the large Suri, were noticed.

93. The prevailing conditions of the country, the large crop, and the urgent need for cash, forced olive growers to put large quantities of oil on the market, causing a considerable drop in prices. Edible oil fetched £P.25 to £P.30 per ton; and olive oil used for soap manufacture, £P.15 to £P.20 per ton.

94. Notwithstanding the unsettled conditions in the country, there was a strong demand for grafted olive trees and olive suckers, more particularly of the pickling varieties.

Bananas.

95. Banana plantations have generally recovered from the 1937 frost, but the yields were poor and the fruit of inferior quality. The interest in this crop, except in the Nuwei'ma area (north-west of Jericho) is declining, and many of the plantations are neglected, resulting in poor yields. This is attributed to the unsettled conditions in the area, depleted soil, improper cultural methods, transport difficulties, partial loss of the Tel Aviv market, and increasing competition from Trans Jordan whence about 327 tons of bananas were imported during the months of April—June, 1938.

96. In Beisan, banana culture has almost ceased owing to the unsuitability of the district and to unsettled conditions. In Tiberias, planting remains practically unchanged. Larger areas, however, are being planted along the coast, notwithstanding the great risk of occasional frost, for the purpose of meeting the increasing demand of the Tel Aviv market.

97. Prices fluctuated, ranging from £P.6 to £P.15 per ton.

Grapes.

98. Considerable interest was shown in planting table grapes under irrigation in the plains; early varieties were mostly in demand. Little interest was shown in the hill districts.

99. The crop of both table and wine varieties of grapes was good and ripened later than usual due to cooler weather conditions. Berry moth (*Polychrosis botrana*) caused a good deal of damage, particularly to wine-grape vineyards which were not treated on instructions from the wineries. Vineyards of table grapes which were treated with sodium fluosilicate plus sulphur or talc sustained less damage. An increase in sooty mould in grapes, caused by *Pseudococcus citri*, was recorded in the vineyards of Zikhron Ya'aqov. Phylloxera continues to spread in the vineyards of the Ramallah sub-district, resulting in poor crops and the dying out of the vines. The bud moth affected certain vineyards in the Jerusalem and Hebron sub-districts. Heavy infestations of mildew were recorded.

100. Although the crop was good, it was irregularly marketed due to transport difficulties, and there was consequently considerable fluctuation in prices. These ranged from £P.5 to £P.20 per ton depending on the season, markets, and varieties. Muscat de Hambourg realised the best prices, and Hebron and Dabuqi varieties, the lowest.

101 The late grapes of the Ramallah sub-district were seriously damaged by the heavy rains of November, 1938.

102. Some experiments were carried out by the Department and by private concerns. Certain varieties showed promise of extending the grape-marketing season.

103. About 21,000 hectolitres of wine were produced.

Sub-Tropical Fruits.

104. Increased interest was shown by growers in the cultivation of sub-tropical fruit trees. A large number of mango, avocado, loquat, annona, and persimmon trees, was raised in local nurseries and planted in orchards, and a lively demand for most of these fruits prevailed on the markets. The successful mango plantation at the Jewish Agency Agricultural Research Station, Rehovot, has popularised this fruit, and a great demand for propagation material was felt in all nurseries.

Berries.

105 The areas planted with strawberries increased. The main centres of cultivation are situated near Tel Aviv and Haifa. The crop was quite a heavy one, and the market was at times oversupplied with fruit.

106. Boysenberry and youngberry, both new introductions, show good promise.

HORTICULTURAL STATIONS.

General.

107. The maintenance of the nine horticultural stations in the country was seriously affected by the disturbances, and six had to be closed down in September, 1938. The stations at Jericho, Acre, and Sarafand, remained open throughout the year.

108. The plantations and buildings at Farradiya and Majdal horticultural stations were badly damaged, and the buildings at Jericho, 'Ein 'Arrub and Nablus burnt. The tools and records also were looted or burnt, and fourteen mules stolen or killed.

109 During the first part of the year under review records were taken and observations recorded on all stations, but many of these were subsequently burnt. A detailed guide to the Jericho horticultural station was issued, and guides to the Acre and 'Ein 'Arrub horticultural stations were in course of preparation.

New-Plant Introductions.

110. The folowing new-plant introductions were made during the year:—

Dates: 100 offshoots of Deglet Nur from California.

Table grapes: Fraoula, Sidérités, and Himoniatico, from Cyprus.

Stone fruit stocks resistant to nematodes: Shalil/63850, Myrobolan 29C, and UC Mar., from California.

Horticultural Experiments.

111. Observations on a few of the experiments in the horticultural stations follow.

Citrus.

112. The experimental work on the duty of water at Jericho horticultral station was continued, but the records were destroyed.

113. Distance-of-planting experiments in the same station continued to indicate that the highest yields and best trees were in the 5 × 5 metre area followed by the 4 × 5 metre area.

Bananas.

114. Notwithstanding the loss of all records of the year, some very noticeable results in the banana experiments at Jericho can be recorded:—

(a) Plants planted in pits are superior to those in trenches.

(b) Desuckered plants are far superior to non-desuckered plants.

(c) Plants pruned to two suckers appear to have less sun-scorched bunches and suffer less from cold and wind than plants pruned to one sucker which form too open a plantation; also the yield is higher in the former case.

Papaya.

115. Investigations reveal that the best varieties of papayas under Jericho conditions are Mme. Russel and Cayenne. The Mme. Russel variety is sweeter and of a better flavour than Cayenne. The variety Prolific is of firm flesh and very suitable for transport. The two former varieties soften when ripe and have to be picked before they are quite mature. The Mammie variety, which has pink flesh, is of fair quality.

Pomegranates.

116. The following varieties of pomegranates have so far shown best results in Jericho and Acre horticultural stations: Wonderful, Mallisi, Bint el Basha and Ras el Baghel.

Fruit Tree Nurseries.

117. Nurseries for fruit trees and vines were continued as in past years but when conditions became more difficult in September, 1938, and some of the horticultural stations were closed down, activities in the nurseries affected had to be stopped.

118. Later, when distribution started, arrangements were made to lift the trees from the abandoned nurseries and to distribute them to the public from centres where protection could be afforded.

119. All nursery trees in Majdal horticultural station were looted, whereas those of Farradiya, 'Ein 'Arrub and Nablus horticultural stations remained untouched and were subsequently lifted for distribution at Acre, Jerusalem, Nablus, and Tel Aviv.

120. The policy of distributing trees in 1938-39 was changed, and any applicant wanting trees or vines could purchase them at the distribution centres. Sixty per cent. of the budded trees and grafted vines could be disposed of, and the remainder had to be replanted in the nurseries.

121. Grafted olives were in great demand, and only a small number of those asked for could be supplied. Heavy reductions in the 1939-40 budget made it necessary to curtail considerably autumn nursery-planting, and preparations were made for the distribution of only 40,000 trees and 20,000 vines in the 1939-40 planting season. It is the intention to reduce this further to 20,000 trees and 20,000 vines in later years, and it is hoped that this will encourage private nurseries to take a greater interest in the propagation of fruit trees and vines.

122. For this reduced programme, the Government nurseries at Acre are now in a position to supply, as vegetatively propagated material, all the apple-, pear,- and American vine-stocks, required.

123. The following table shows the extent of fruit tree and vine distribution during 1938-39:—

TABLE IX.

FRUIT TREES AND VINES RAISED AT GOVERNMENT NURSERIES AND DISTRIBUTED DURING THE YEAR 1938-39.

	Number raised	Number distributed		Number left over	
		Sold	Issued free	Replanted	Destroyed
Vines	100,290	71,166	4,477	17,500	7.147
Fruit trees (mostly deciduous)	45,822	28,403	10,293	1,883	5,243

Horticultural Demonstration Plots.

124. The work in all fruit demonstration plots was continued normally up to September, 1938, no damage having been sustained by any of them. After that date, when conditions made it necessary to restrict certain district activities, twenty-four demonstration plots, out of twenty-eight, were closed down and handed back to the owners of the land, who, it is hoped, will continue to care for them.

125. Work was continued on the Jerusalem apple and pear plot, the Ramallah vine plot, the Sarona deciduous fruit plot, and the Kinneret date plot, up to the close of the year, when, with the exception of the date plot at Kinneret and the apple and pear plot at Jerusalem, work was discontinued on grounds of economy.

126. A further consignment of one hundred date offshoots was received from California in the summer of 1938; these arrived in good condition and about eighty per cent. have rooted.

Work of Horticultural Field Officers.

127. The activities of the touring horticultural officers were greatly curtailed owing to insecurity during most of the year, especially so in Arab districts; two officers being placed on extraordinary leave for almost half of the year. In Jewish areas, a considerable amount of the officers' time has been taken in estimating, at the request of the police and district authorities, damages caused to plantations by saboteurs.

Horticultural Research.

Citrus Fruit Wastage.

128. This has already been reported on in the chapter dealing with the citrus industry, vide paragraph 83.

Keeping-qualities of Plums.

129. An investigation was conducted as to the keeping-qualities of two Japanese varieties of plums, Wickson and Kelsey, under cold and ordinary storage conditions.

130. The results achieved show that neither variety can be kept in Palestine under ordinary storage conditions for more than a few days. Stored for five weeks at a temperature of 1—2°C., Kelseys improved in both colour and taste, but Wicksons deteriorated. Fruit wrapped in ordinary paper gave better results than those unwrapped, or wrapped in oiled paper. Boxes packed with one layer of fruit showed less wastage than those with two layers.

Keeping-qualities of Table Grapes.

131. Investigations relating to the storage of table grapes, both native and introduced, were instituted. Most of the varieties kept under ordinary storage conditions showed a high percentage of wastage after a week. Those kept in cold storage at temperatures varying between 0.5°C. and 1.5°C. gave much better results.

132. Preliminary studies with native varieties kept for thirty-two to forty days in cold storage indicate up to 80 per cent. berry drop in grapes of the Marrawi variety, up to 50 per cent. in Salti-Khdari, up to 20 per cent. in 'Einuni and Balluti, and about 2 per cent. in Dabuqi. Decay developed up to 50 per cent. in Balluti and Salti-Khdari, about 10 per cent. in 'Einuni and Dabuqi and 7 per cent. in Marrawi. Dabuqi was therefore the only native variety in these trials which showed any promise.

133. In the introduced varieties, Chasselas, Lady Downes Seedling, Emperor, Flame Tokay, Rosaki, and Frankenthal, showed no drop; whereas Blue Serbian and Prune de Cazouls showed 3 per cent. drop, Dattier de Beyrouth, Ohanez and Alphonse Lavallée from 7 to 10 per cent., and Enab Turki 20 per cent.; while a heavy drop occurred in general in Muscat de Hambourg (40 per cent.) and Muscat d'Alexandrie (50 per cent.)

134. Wastage in these grapes shows a low percentage of loss in Alphonse Lavallée, Prune de Cazouls, Emperor, Rosaki, Flame Tokay, and Dattier de Beyrouth. A wastage of 5 to 10 per cent. was recorded in Muscat d'Alexandrie, Ohanez, Blue Serbian, Frankenthal, and Chasselas. High losses resulted in Lady Downes Seedling, Enab Turki, and Muscat de Hambourg. The introduced varieties which, therefore, show promise for storage and export are Prune de Cazouls, Alphonse Lavallée, Emperor, Flame Tokay, Dattier de Beyrouth, Rosaki, and Chasselas.

135. Investigations further showed that certain varieties could be stored longer than others. The following varieties have kept well for over fifty days: Dabuqi, Dattier de Beyrouth, Alphonse Lavallée, Chasselas, Emperor, and Flame Tokay.

136. Studies in the various methods of packing, — without wraps, in sawdust, in cork, with various wrappers, etc.,—definitely indicate that grape bunches stored in the ordinary method of packing (without wrapping each bunch separately) show a decidedly higher percentage of wastage than those wrapped in tissue or oil paper. The following varieties fetched good prices on the local market, after forty days' storage:—

Prune de Cazouls
Alphonse Lavallée
Blue Serbian
Black Valencia
Frankenthal
Flame Tokay
Rosaki.

Local varieties — Marrawi and Balluti — when sold in November, 1938, fetched good prices.

Pyrethrum.

137. Seeds of pyrethrum introduced from Kenya in 1936 were grown at the horticultural stations of 'Ein 'Arrub and Sarafand. The following are analyses of pyrethrum heads collected in the summer of 1938, carried out by the agricultural section of the Central Laboratories, Department of Health, Jerusalem.

TABLE X.

ANALYSES OF PYRETHRUM HEADS GROWN AT THE HORTICULTURAL STATIONS OF 'EIN 'ARRUB AND SARAFAND IN 1938.

Sample	Approximate content of Pyrethrin I
	Percentage
'Ein 'Arrub No. 1 (indigenous)	0.07
'Ein 'Arrub No. 2	0.30
Sarafand No. 1	0.50
Sarafand No. 2	0.50
Sarafand No. 3	0.40
Imported Powder	0.50

Broadcast Talks to Farmers.

138. The following is a list of talks to farmers on horticultural subjects, prepared by horticultral officers and broadcast by the Palestine Broadcasting Service:—

(a) An account of the citrus fruit advertising campaign, 1937-38.
(b) A review of the citrus fruit industry, 1937-38.
(c) Banana cultivation.
(d) Picking and packing of grapes.
(e) Common mistakes in fruit growing in Palestine.
(f) Olive oil production.

(g) The Citrus Fruit Regulations.

(h) Fruit stocks (pome fruits).

(i) Sanitation of groves.

(j) Fruit stocks (stone fruits).

(k) Fruit inspection (hints and observations).

(l) Some mistakes in grape growing.

Control of Private Nurseries.

139. The control of private nurseries was handed over to the Plant Protection Service, but the inspection work remaned in the lands of the horticultural staff. Forty-six inspection were made during the year under review.

R. O. WILLIAMS,
Chief Horticultural Officer.

Jerusalem, March 21, 1939.

REPORT

BY THE

ACTING CHIEF PLANT PROTECTION OFFICER

FOR THE YEAR 1938-39

(April 1, 1938, to March 31, 1939)

SECTION III.

IDENTIFICATIONS.

140. The purchase of two more insect cupboards made it possible to transfer further insects from ordinary exhibition boxes to insect cupboards. A total of twenty-nine boxes has been thus arranged, viz., fifteen boxes with 128 species of fifteen families of *Lepidoptera* and fourteen boxes with 233 species of twenty-three families of *Coleoptera*. So far, the following orders have been arranged in insect cupboards: *Orthoptera*, *Dermaptera*, *Isoptera*, *Embioptera*, *Odonata*, *Hemiptera*, *Neuroptera*, *Trichoptera*, *Lepidoptera*, and a part of *Coleoptera*. There still remain a great part of *Coleoptera* and the orders of *Diptera* and *Hymenoptera* to be arranged in insect cupboards.

141. The whole collection numbers at present 1,742 species of 207 families. All identifications were made by the Imperial Institute of Entomology. This year, five consignments of insects were sent to the Imperial Institute of Entomology for identification, of which sixty-eight species have been received identified. Of these, twenty species were of economic interest and one new to the British Museum. The whole collection is recorded on a card index.

RESEARCH AND INVESTIGATIONS.

Citrus Pests.

142. Investigations into the biology and methods of control of Mediterranean fruit-fly (*Ceratitis capitata*) in the Plain of Jezreel have been continued. Black scale (*Chrysomphalus ficus*) investigations at Jaffa, which have been continued for some time, had to be abandoned owing to the disturbed conditions in the country.

143. At Acre, citrus fruit examined this season which is the third after a double fumigation experiment against black scale has been found commercially clean.

144. A paper was published in the *Bulletin of Entomological Research* on the bionomics of the Mediterranean fruit-fly in the Jordan Valley.

Grape Vine Pests.

145. Biological investigations into the grape-berry moth (*Polychrosis botrana*) have been completed and methods of control elaborated. It is intended to publish results at an early date.

Pests of Deciduous Fruit-Trees.

146. Studies on the biology and control of *Capnodis* spp. — a pest of stone-fruit trees — is in progress.

147. Woolly aphis (*Eriosoma lanigera*) is being studied. Its parasite, *Aphelinus mali*, which has been introduced from Egypt, survived the severe winter of 1937-38 in several places. Preliminary results from the studies of the biology of *Aphelinus mali* and its host have been compiled.

148. Studies on the bionomics of the Mediterranean fruit-fly in the hill country, where it attacks mainly peaches and apricots, have been continued. Progress was also made in the investigation of the biology and methods of control of this fly in the Plain of Jereel, where, besides citrus, it also attacks the fruit of deciduous trees.

149. The life history of the codling moth (*Carpocapsa pomonella*) in the Plain of Jezreel is being studied and methods of control are being investigated.

150. Control experiments with quassia sprays against the plum sawfly (*Hoplocampa flava*) have been carried out and are still in progress.

Pests of Cereals and other Crops.

151. The biological study of the wheat-blade miner (*Syringopais temperatella*) and methods of control have been started.

152. The work on the biology and control of *Prodenia litura*, which attacks especially *berseem* and lucerne, has been completed and will shortly be published.

153. Bionomical studies and methods of control of the potato leaf-hopper (*Empoasca lybica*) are approaching completion and results will soon be ready for publication.

154. Investigations on pests attacking vegetables in the hill country have been continued.

155. A list of insects injurious to vegetables and shrubs in the Jordan Valley, the Hula basin, and Upper Galilee, was published in the *Bulletin de la Société Fouad* 1*er d'Entomologie* of Egypt.

EXTENSION WORK.

156. Extension work was very restricted during 1938, owing to the disturbed conditions of the country. During the first half of the year, however, it was still possible to carry out some pest-control demonstrations in the hill country against fig scale-insects, vine pests and diseases, and vegetable insect pests.

PLANT PATHOLOGY.

157. During the year, 136 identifications of diseased plants were received from the Head of the Divison of Plant Pathology of the Jewish Agency Agricultural Research Station, Rehovot.

158. The Mycological Officer returned from Cairo after more than a year's training at the Mycological Section of the Egyptian Ministry of Agriculture. The main duties of this officer will consist in demonstrating to the farmer the practical application of fungicides against diseases, in close co-operation with the field staff of the Agricultural and Horticultural Services. Control experiments have been started against *Puccinia antirrhini* which makes the growing of antihirrinum very difficult.

PLANT QUARANTINE.

159. A total of 7,285 consignments of imported plants was examined at the ports of Haifa, Jaffa, Tel Aviv, and at the Jerusalem railway station. The total number of exported consignments examined amounted to 699.

160. The plant-quarantine staff was busily engaged with the licensing, registration, and inspection of plant nurseries, in close co-operation with officers of the Horticultural Service.

LEGISLATION.

161. With the exception of two amendments to the Plant Protection (Nursery) Rules, 1934, no legislation was promulgated.

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162. With great appreciation I would like to place on record the valuable assistance rendered by the Imperial Institute of Entomology, the Imperial Mycological Institute, the Plant Virus Research Station at Cambridge, and the Jewish Agency Agricultural Research Station at Rehovot, in identifying insects, fungi, and virus-suspected material, submitted to these institutitons.

P. JOLLES,
Acting Chief Plant Protection Officer.

Jerusalem, June 1, 1939.

REPORT

BY THE

CHIEF VETERINARY OFFICER

FOR THE YEAR 1938-39

(April 1, 1938, to March 31, 1939)

SECTION IV.

GENERAL REVIEW.

163. The year under review was an extremely good one for livestock. Rainfall during the winter of 1937-38 was plentiful and well-distributed, with the result that natural pasture throughout the country was comparatively abundant, whereas stubble provided a fair amount of feed during the summer months. Good rains also fell throughout last winter and spring, producing excellent grazing and prolonging the usual grazing season.

164. The general condition of village livestock which mainly subsists on natural grasses and stubble grazing was satisfactory. Animals were thus better able to withstand external and internal parasitic affections which cause considerable mortality during semi-drought years. The lambing and kidding seasons were also good; and stock, during early life, thrived well.

165. Unfortunately, owing to the continuance of the disturbances throughout the country and lack of security, officers of the Veterinary Service were unable to further various schemes in hand for the improvement of livestock and for the control of contagious and infectious diseases and had perforce to restrict their activities to a very great extent; while, towards the end of the summer of 1938, work in many rural Arab areas had to be suspended entirely. On the other hand, veterinary work in Jewish settlements was not impaired to any appreciable extent and was thus continued although admittedly under difficult and trying conditions.

166. During the summer of 1938, several animal quarantine stations and district poultry stations were destroyed by saboteurs. It was consequently decided to close temporarily all frontier animal quarantine stations with the exception of those at Samakh and Ras en Naqura, and all district poultry stations with the exception of that at Jerusalem.

167. It is with deep regret that I have to record the death of the following officers of the Veterinary Service in September, 1938. The late Mr. David Mossinson, M.R.C.V.S., lost his life due to the explosion of a land mine under the car in which he was travelling. The deceased was a young, capable, and energetic veterinary officer with marked ability who served the Government with loyalty and devotion for some years, and his loss is deplored. The late Faiz Eff. 'Abbushi, stock inspector, was shot by armed men. He had served with Government for over fifteen years and always displayed keenness and devotion to his duty. The deceased was an able and capable officer, and his loss is regretted.

GOVERNMENT VETERINARY LABORATORY.

168. Mr. R.M. Gambles, M.A. (Cantab.), B.Sc. (Edin.), M.R.C.V.S., F.R.E.S., was appointed in August, 1938, on transfer from Cyprus, to the post of Veterinary Research Officer which remained vacant since July, 1937, following the promotion of Mr. G.B. Simmins, M.R.C.V.S., D.V.S.M., to the post of Senior Veterinary Research Officer.

169. The activities of the Government Veterinary Laboratory had to be severely curtailed during September, October, and part of November, 1938, while this institution was being transferred from Jaffa to Tel Aviv, where it is now housed in better premises, and where a suitable stable for experimental and test animals is available.

170. Owing to the delay in the appointment of the Veterinary Research Officer and the subsequent absence of the Senior Veterinary Research Officer on leave, it has not been possible to carry out any investigational work other than that necessary to assist diagnosis. Serum production has, however, been resumed and it is hoped to have shortly a stock of anthrax, fowl-cholera, and haemorrhagic-septicaemia anti-sera.

171. Over 32,000 specimens, excluding smears, were examined, and sub-inoculations in connection with diagnosis were performed on 135 rabbits, 95 mice, 75 rats, 68 guinea pigs, 32 fowls, and 24 pigeons. 2,438 slides were microscopically examined in connection with field diagnosis the results of which are shown in the following tables:—

Table XI.

Diagnoses.

Results of Examination of Specimens Submitted for Diagnosis During the Year 1938-39.

Disease	Cattle	Horses, Mules and donkeys	Sheep	Goats	Poultry	Bees	Rabbits	Dogs	Camels	Squirrels	Total
Piroplasmoses :—											
Theileria annulata, acute	9	—	—	—	—	—	—	—	—	—	9
Theileria annulata	39	—	—	—	—	—	—	—	—	—	39
Anaplasma marginale	21	—	—	10	—	—	—	—	—	—	31
Babesia bigemina	30	—	—	—	—	—	—	—	—	—	30
Babesia bovis	1	—	—	—	—	—	—	—	—	—	1
Babesia ovis	—	—	4	—	—	—	—	—	—	—	4
Anthrax	18	—	22	9	—	—	—	—	—	—	49
Epizoötic lymphangitis	—	15	—	—	—	—	—	—	—	—	15
Tuberculosis	1	—	—	—	—	—	—	—	—	—	1
Pulpy-kidney disease	—	—	2	1	—	—	—	—	—	—	3
Paratuberculosis	1	—	—	—	—	—	—	—	—	—	1
Ringworm	—	1	—	—	—	—	—	—	—	—	1
Coccidiosis	—	—	—	—	—	—	10	—	—	1	11
Mastitis :—											
Streptococcus agalactiae	7	—	—	—	—	—	—	—	—	—	7
Streptococcus uberis	1	—	—	—	—	—	—	—	—	—	1
Streptococcus (other varieties)	5	—	—	—	—	—	—	—	—	—	5
Staphylococcus aureus	3	—	—	—	—	—	—	—	—	—	3
C. Pyogenes	—	—	—	1	—	—	—	—	—	—	1
Diseases :—											
Fowl typhoid	—	—	—	—	3	—	—	—	—	—	3
Fowl cholera	—	—	—	—	13	—	—	—	—	—	13

(Continued).

Diseases	Cattle	Horses, Mules and Donkeys	Sheep	Goats	Poultry	Bees	Rabbits	Dogs	Camels	Squirrrels	Total
Spirochaetosis	—	—	—	—	13	—	—	—	—	—	13
Bacillary white diarrhoea	—	—	—	—	2	—	—	—	—	—	2
Salmonella aertrycke	—	—	—	—	6	—	3	—	—	—	9
Salmonella enteritidis	—	—	—	—	2	—	—	—	—	—	2
Salmonella muenchen	—	—	—	—	1	—	—	—	—	—	1
Fowl pox and diphtheria	—	—	—	—	3	—	—	—	—	—	3
Coccidiosis	—	—	—	—	95	—	—	—	—	—	95
Haemoproteus columbae	—	—	—	—	2	—	—	—	—	—	2
Leukaemia	—	—	—	—	3	—	—	—	—	—	3
Visceral gout	—	—	—	—	6	—	—	—	—	—	6
Avitaminosis	—	—	—	—	3	—	—	—	—	—	3
Proventriculitis	—	—	—	—	7	—	—	—	—	—	7
Peritonitis	—	—	—	—	1	—	—	—	—	—	1
Tumours and cysts	—	—	—	—	5	—	—	—	—	—	5
Prolapse of oviduct	—	—	—	—	2	—	—	—	—	—	2
Ruptured oviduct	—	—	—	—	3	—	—	—	—	—	3
Ruptured liver	—	—	—	—	4	—	—	—	—	—	4
Occlusion of larynx	—	—	—	—	1	—	—	—	—	—	1
Impaction of intestines	—	—	—	—	2	—	—	—	—	—	2
Roundworms	—	—	—	—	4	—	—	—	—	—	4
Cerebral injury	—	—	—	—	1	—	—	—	—	—	1
Bee Diseases:—											
European foulbrood	—	—	—	—	—	17	—	—	—	—	17
American foulbrood	—	—	—	—	—	19	—	—	—	—	19
Negative	173	49	50	6	167	4	6	3	1	—	459
Total	309	65	78	27	349	40	19	3	1	1	892

GOVERNMENT STOCK FARM.

172. Work at the Government Stock Farm, which is situated near Acre and is combined with the Agricultural Station, had also to be restricted, as, owing to the disturbances, it was impossible to carry out normal activities. Mr. T. Bell, B.Sc. (Agric.), Hons., A.I.C.T.A., Assistant Manager, was transferred a few weeks later to British Guiana, and his post was abolished for reasons of economy. The Manager of the Government Stock Farm and Agricultural Station, which is the largest Government institution of its kind, remained single-handed, and work was carried on under most difficult conditions. The activities of the Government Stock Farm, which are closely related with field operations, are referred to in a subsequent chapter of this report.

173. During the year under review, the following animals were acquired: one Arab stallion from Syria, one jackass from Cyprus, and two Guernsey bulls from England. A drastic culling of all classes of stock was effected with a view of breeding only from the very best sires and dams and, at the same time, to meet the demand for reduction in establishment of stud stock so as to reduce maintenance expenditure. Those culled animals which were suitable for breeding purposes and for the improvement of village stock were sold at reasonable prices to stock owners. Receipts, which were derived mainly from sales of stock, amounted to £P.1,040.

174. The present establishment comprises the following animals:—

Bulls and bull-calves	33
Cows and heifer-calves	63
Horses	21
Donkeys	37
Sheep	320
Goats	141
Pigs	16
Total	631

175. With the exception of an outbreak of foot-and-mouth disease, the general health of the animals was good. The outbreak of foot-and-mouth disease, from which the Kerries and Guernseys suffered particularly, resulted in the death of two Kerry cows and caused heavy mortality among the litters of swine. The cows lost condition to such an extent that a part of them had to be dried-off, and milk-recording had therefore to be discontinued. There was a certain number of deaths among sheep due to strongylosis as pasture land is limited and insufficient for the flock kept. This has now been corrected by reducing the stock and taking other measures.

POULTRY STATIONS AND APIARIES.

176. Early in the year under review, ten district poultry stations and apiaries were in operation apart from the central poultry station and apiary which is attached to the Government Stock Farm at Acre. The central station's main function is the acclimatisation of imported first-quality birds of different breeds of poultry considered suitable for the country, as well as rabbits, and the distribution of the progeny thereof and hatching eggs to poultry farmers. Almost all modern poultry farms in the country are stocked, directly or indirectly, with the progeny of this station. District poultry stations and apiaries were established primarily to serve fellahin interested in poultry farming and bee-keeping who were willing to improve their flocks and take up bee-keeping. The activities of these stations comprised the distribution of hatching eggs, day-old chicks,

broody hens, and bee swarms, at production-cost prices and the demonstration of improved methods of poultry farming and bee-keeping. District stations were conveniently distributed throughout the country so as to afford facilities to those interested to visit the stations at any time and observe proper methods of poultry farming and bee-keeping.

177. Four of the district poultry stations and apiaries were destroyed by saboteurs during the summer of 1938; whereas the remaining ones, with the exception of that at Jerusalem, had to be closed owing to lack of security, and all birds, poultry houses, equipment, and hives, were removed therefrom. The activities at the central station at Acre had to be curtailed considerably for the same reason; the establishment of birds was reduced, and the distrbution of hatching eggs and breeding stock was not so high as in previous years owing to the difficulties in transport. Receipts from sale of poultry, poultry produce, swarms, and honey, amounted to £P.2,020.

178. The establishment of the Acre Poultry Station and Apiary comprises 3,745 hens of the following breeds: Leghorn, Sussex, Wyandotte, Rhode Island Red, Barred Plymouth Rock, and Australorp; 174 hens of the Fayoumi and 518 of the improved native breed; 280 ducks (Khaki Campbell, Orpington, Aylesbury, and Peking); 139 rabbits of the following breeds: Chinchilla, Chin Rex, Blue Rex, Ermine Rex, Black Rex, Castor Rex, White Giant, and Angora; and 250 hives populated with Carniolan, Italian, and native bees. Stock at the Jerusalem Poultry Station consists of the following breeds: White Leghorn, Rhode Island Red, and Barred Plymouth Rock.

179. During the year, the following stock was imported from Great Britain, Australia, and the United Statets: 5 Barred Plymouth Rock pullets and one cockerel, 3 Aylesbury ducks and one drake, 5 New Hampshire Red pullets and one cock, 26 White Leghorn pullets and 3 cocks, 4 Australorp pullets and one cock, 5 Rhode Island Red pullets and one cock, and 4 Light Sussex pullets and one cock.

EXTENSION WORK.

180. The lack of security made it very difficut—and in certain areas practically impossible—in the case of the Arab section of the farming community, for field officers to carry out their primary duty, namely, to maintain direct contact with the stock owner, poultry farmer, and bee-keeper, for the purpose of giving them suitable directions for the prevention and control of disease and the necessary advice and guidance for the improvement in the management of their stock. No opportunity was, however, missed to impart the necessary directions and advice whenever and wherever contact could be established.

181. Articles on topical subjects were published in the *Agricultural Supplement to the Palestine Gazette*, and radio talks given on matters of direct interest to the farmer. Copies of the *Agricultural Supplement* and printed *Talks to Farmers* were widely distributed, and many written requests for advice and guidance were dealt with.

182. Refresher courses in poultry farming and bee-keeping could not be held during the year under review. However, the extension staff of the Veterinary Service gave lectures on various subjects at meetings convened by Jewish poultry farmers' and bee-keepers' associations.

ANIMAL DISEASES.

183. Palestine continued free from serious epizoötic diseases such as cattle plague and bovine contagious pleuro-pneumonia, but the continuous presence of foot-and-mouth disease and its apparent increased virulence is becoming a serious problem. No outbreaks of haemorrhagic septicaemia and black-quarter have been reported during the year under review.

Foot-and-Mouth Disease.

184. After an interval of about four years, during which the country remained free from foot-and-mouth disease, this disease broke out in February, 1937, since when it has, in a varying degree, been continually present.

185. As in the previous year, the incidence of the disease declined towards July, 1938, and subsided during late summer and autumn. However, in the winter of 1938-39, the disease broke out in several places and its incidence increased rapidly.

186. In previous reports, the local type of the disease has been recorded as mild. Although this is still true of the disease as observed in native cattle, it seems, judging from reports submitted by farmers keeping imported and grade dairy-cattle, that the disease among such cattle is causing heavier losses than in previous years. In some outbreaks, deaths were reported among such cattle, and, apart from abortions and a serious fall in milk yields, it has been found necessary to dispose of quite a number of animals which have been rendered valueless for breeding and production purposes.

187. Settlements which breed and keep pedigree and first-grade dairy-cattle continue to maintain a very strict self-imposed quarantine on their farms and have, possibly owing to such quarantine, been fortunate in escaping infection during the period under review. However, at the time of writing this report, the disease has gained entry into some of these settlements and is the cause of serious concern.

188. No measures, however, even if such were practicable from a disease-control point of view, could be taken owing to the insecurity prevailing throughout the country.

189. Every effort was made and continues to be made to prevent the introduction of the European type of foot-and-mouth disease by slaughter cattle imported from south-east European countries. Prior to receipt of information that countries such as Rumania and Bulgaria were affected with foot-and-mouth disease, the disease was detected among several consignments of cattle when examined on board. Any cattle exhibiting a temperature or lesions of the disease were consequently refused landing, while in-contacts were landed and slaughtered under rigorous supervision.

190. As soon as it was officially learnt that Rumania and Bulgaria were infected with this disease, the importation of cattle therefrom was prohibited entirely. In view of the fact that the bulk of this country's beef supplies is derived from the Balkan states, and in view of the necessity to maintain such supplies, the embargo was raised later, and cattle from European countries affected with foot-and-mouth disease were permitted to be landed, subject to compliance with all standing quarantine rules and to being slaughtered only at the Haifa abattoir within seven days of landing, provided that they had been drawn from certified non-infected areas in the country of origin.

191. Following he removal of the embargo, it was found necessary to refuse the landing of three consignments of cattle as cases of foot-and-mouth disease were detected among them on board the vessels. Thereafter, some twenty shipments were received, and no case of the disease was detected.

192. The importation of cattle from adjacent territories in which foot-and-mouth disease exists was also prohibited and the rules prohibiting the importation of frozen and chilled carcases from Europe were amended so as to permit imports of such carcases provided they are accompanied by an official certificate to the effect that they were derived from animals free from foot-and-mouth disease at the time of slaughter.

193. Several specimens of the local virus were sent to the Director of the Veterinary Laboratory, Ministry of Agriculture and Fisheries, Great Britain, for the purpose of establishing the type. The results of the examination are not as yet to hand.

Tick-borne Fevers.

194. The losses caused by tick-borne fevers to dairy cattle are considerable although dipping is being practised regularly and appreciable improvement is to be recorded. The following extract fom the last annual report of the Ha Haqlait Mutual Cattle Insurance Society, which insured during the year some 10,000 head of cattle, is quoted as illustrating the position among such cattle:—

> "Tick-borne fevers are the most harmful and troublesome scourges in cattle. Cases of sickness are numerous and lossses are heavy. 656 head suffered from tick-borne fevers, of which 142 died — a mortality amounting to approximately 22 per cent. of the total number of deaths from all causes among insured cattle. Of the 142 cases of death, *Theileria annulata* was responsible for 85, piroplasmosis for 27, and anaplasmosis for 18. These sad results lead one to suspect that there has been some negligence in carrying out directions for the prevention of tick-borne fevers; this must be rectified.
>
> Tick-borne fevers did not stop even during the rain months; this proves that during the winter too it is necessary to continue the campain against ticks, and, if dipping is impossible, animals should at least be washed and ticks not allowed to remain on them."

195. Native cattle, sheep, and goats, suffer also from tick-borne fevers but not to anything like the same extent. Mortality is high only when the condition of such animals has fallen to a low level owing to scarcity and poverty of natural pasture and stubble. So far as could be ascertained, there was no serious mortality due to tick-borne fevers among native stock during the year under review.

196. The dipping of sheep and goats in baths constructed with the assistance of Government could not be carried out regularly during the year owing to insecurity. Several dippings were made, however, in ten baths, and over 45,000 animals were dipped three to four times.

Bovine Contagious Abortion.

197. The control of this disease in most of the herds consisting of first-quality breeding and dairy cattle was continued. Twelve new herds were taken under control during the year, and the number of herds the cattle of which are tested regularly and to which other measures of control are applied now totals 137. Of these herds, 109 remained free of the disease during the whole year; whereas in the other herds only one or two reactors were detected in each and disposed of immediately. Although in a few herds there has been a serious re-infection, the situation in general regarding this disease which previously caused serious losses is quite satisfactory.

198. Blood samples are being collected by veterinary officers at the required intervals, and 29,200 agglutination tests were performed at the Government Veterinary Laboratory. Of these, 127 proved positive and 70 doubtful. 230 tests for private practitioners on behalf of persons desiring to purchase cattle free from disease were also carried out with positive results in 18 cases. 2,615 agglutination re-tests were performed in connection with the foregoing. Complement fixation tests are also applied whenever considered necessary and especially in doubful reactions; 806 such tests were performed during the year. Reactions which are finally considered doubful have comprised only 0.24 per cent. of the total number of tests.

Tuberculosis.

199. From the available evidence it is obvious that the incidence of tuberculois among dairy cattle is increasing from year to year. It is most unfortunate that it has not been possible to appropriate the funds necessary for the control and

eradiction of this cattle scourge which, apart from losses sustained by the farmer, constitutes a danger to public health.

200. Some 200 cases of tuberculosis were detected among cattle at fourteen slaughter houses, and about 2,000 doses of tuberculin were issued to the veterinary surgeons of the Ha Haqlait Mutual Cattle Insurance Society, which is the only organisation that makes an effort to prevent the spread of this disease among the cattle of its members. In those settlements where the number of clinical cases is small, the society participates in the loss sustained by the settlers through the slaughter of affected animals, subject to the condition that reactors are isolated. During the last year, 31 diseased animals were thus disposed of by slaughter.

Johne's Disease of Cattle.

201. Material was received at the Government Veterinary Laboratory from one suspected case and confirmed as positive.

Mastitis.

202. The various forms of mastitis, of which bovine contagious mastitis caused by *Streptococcus agalactiae* is one, play a considerable role in the losses sustained by the stock owner. The only practical means of reducing losses in this case is a systematic examination of milch cows coupled with laboratory examinations in order to eliminate wasteful and dangerous animals. It has not been possible to attack this disease seriously owing to financial reasons. 37 samples of milk from cows, sheep, and goats, were examined at the Government Veterinary Laboratory wtih the following results:—

Streptococcus agalactiae	7
Streptococcus uberis	1
Streptococcus—other varieties	5
Staphylococcus aureus	3
C. pyogenes	1
Negative	20

Anthrax.

203. Anthrax is endemic in the country. Protective vaccination of dairy cattle is practised in many settlements with good results. An attempt to induce owners of sheep and goats to practise annual protective vaccination on a large scale, following the successful results attained by this practice in the Jerusalem District, has been most unfortunately frustrated by the unsettled conditions in the country during the last three years.

204. Twenty-three outbreaks of anthrax were reported during the year, involving 2,883 animals of which 109 died; the remaining animals were vaccinated by veterinary officers, and further mortality was thus prevented. It is believed that many more outbreaks occurred, but, owing to lack of contact with stock owners and the general unrest in the country, these have not been reported.

205. The incidence of anthrax is shown in the following tables:—

TABLE XII.

INCIDENCE OF ANTHRAX IN PALESTINE DURING THE YEAR 1938-39.

Veterinary district	Number of Outbreaks	Number of animals involved	Number of deaths	Number of animals vaccinated
Jerusalem	5	384	16	376
Jaffa	6	320	6	534
Gaza	—	—	—	—
Nablus	3	646	77	548
Haifa	1	87	2	85
Tiberias	8	1,446	8	1,408
Total	23	2,883	109	2,951

TABLE XIII.

INCIDENCE OF ANTHRAX—SUMMARY FOR FIVE YEARS.

Year	Number of outbreaks	Number of animals involved	Number of deaths	Number of animals vaccinated
1934-35	71	15,304	538	14,766
1935-36	72	17,935	770	17,165
1936-37	68	20,913	533	20,380
1937-38	56	14,968	221	14,140
1938-39	23	2,883	109	2,951

Dourine.

206. Owing to the lack of security, it has not been possible to test for possible infection with dourine as many horses as originally envisaged. However, some 1,800 horses were subjected to the complement fixation test; of these, 42, or 2.3 per cent., proved positive. All sera are double tested in order that there should be no error; the total number of tests amounted therefore to 3,600. Diseased stallions were castrated, whereas some of the diseased mares were destroyed and the use of others for beeding purposes was prohibited.

Epizoötic Lymphangitis.

207. Seventeen horses affected with epizoötic lymphangitis were detached or reported. Of those, thirteen cases occurred in Haifa town. Fifteen of these horses were confirmed as positive by microscopical examination at the Government Veterinary Laboratory. The animals were destroyed and owners compensated.

Glanders.

208. Fifty-one cases of glanders were detected or reported, as compared with seventeen in the previous year. Of these, thirty-seven occurred in Jaffa and Haifa towns, and eleven in Kefar Barukh and Nahalal settlements which are situated close to each other. This rather rapid increase in the incidence of glanders caused a certain amount of anxiety and every possible effort was made, despite the prevailing disturbed state of the country, to prevent the spread of this equine plague. All diseased animals were destroyed and the owners compensated in order to encourage the early reporting of any new cases. Clinical examinations and mallein tests were performed on a large scale, and a description of the symptoms of the disease and a warning to owners of equines were widely distributed and at the same time broadcast by the Palestine Broadcasting Service. Efforts are being continued to suppress the disease.

Diseases of Swine.

209. An outbreak of swine fever with very heavy mortality occurred in a piggery near Jaffa. Material was received at the Government Veterinary Laboratory, and examination confirmed the suspicion that the disease was swine fever. This is the first occasion that this disease has been diagnosed in Palestine.

Sheep- and Goat-Pox.

210. Three sporadic outbreaks of sheep- and goat-pox were reported and suitably dealt with. Mortality was low.

Parasitic Gastro-enteritis in Sheep and Goats.

211. In November, 1938, and subsequent months, a number of outbreaks of strongylosis in sheep and goats was reported, but mortality was low owing to the good general condition of the animals affected.

Rabies.

212. Eighty-seven cases of rabies were dealt with of which sixty-five occurred in dogs and six in cats. 579 suspected rabid animals were placed under observation in municipal kennels; of these, six dogs and one cat developed rabies.

213. The destruction of dogs and çats could not be carried out to the same extent as in previous years, and only some 13,000 such animals were destroyed as compared with 25,000 in the preceding year.

214. The incidence of rabies, by veterinary districts, and kinds of animal are indicated in the following tables:—

TABLE XIV.

INCIDENCE OF RABIES IN PALESTINE DURING THE YEAR 1938-39.

Veterinary district	Dogs	Cats	Other animals	Total
Jerusalem	1	—	1	2
Jaffa	17	1	5	23
Gaza	4	1	1	6
Nablus	15	2	5	22
Haifa	7	2	1	10
Tiberias	21	—	3	24
Total	65	6	16	87

TABLE XV.

INCIDENCE OF RABIES IN PALESTINE—SUMMARY FOR FIVE YEARS.

Year	Dogs	Cats	Other animals	Total
1934—35	100	22	20	142
1935—36	67	9	21	97
1936—37	85	12	25	122
1937—38	93	14	25	132
1938—39	65	6	16	87

Poultry Diseases.

General.

215. The general condition and health of poultry were quite satisfactory, and only a few sporadic outbreaks of infectious and contagious diseases occured, with low mortality. Mortality among chicks and young stock, due mainly to faulty management and sanitation, is still considerable; and the two poultry disease officers devoted most of their time to visiting modern poultry farms with a view giving the necessary advice and guidance and correcting the above faults.

Fowl Plague.

216. No outbreaks of fowl plague were reported or observed.

Fowl Pox.

217. Fifty-seven outbreaks were detected and dealt with. Protective vaccination was practised by the majority of modern poultry farmers with fairly satisfactory results.

Fowl Cholera.

218. Materials from twenty-six suspected cases were examined at the Government Veterinary Laboratory; of these, thirteen proved positive. Suitable measures of control were applied to infected poultry farms. A considerable number of cases of fowl cholera was detected among consignments of imported poultry during their detention in quarantine. The diseased birds and all in-contacts were slaughtered.

Fowl Typhoid.

219. Two outbreaks only were reported; of these one occurred in a village and the other on a modern poultry farm.

Fowl Paralysis.

220. The incidence of fowl paralysis has greatly increased during the year under review. Severe culling of all breeding stock was advised and practised with the hope of reducing losses due to this condition.

Leukemia.

221. Cases of this disease observed on post-mortem examination of birds were numerous.

Spirochaetosis.

222. Forty-five outbreaks of spirochaetosis were reported and treated.

Coryza.

223. The policy of controlling outbreaks of coryza by separating young stock from adults has given, as last year, good results.

Undiagnosed Disease in Rhode Island Reds.

224. A peculiar skin condition in Rhode Island Reds was observed on several farms and is at present under investigation.

Salmonella Infection in Chicks and Ducklings.

225. Outbreaks of disease with heavy mortality in chicks and ducklings, due to various members of this group of organisms, are becoming increasingly common. During the period under review, ten outbreaks were diagnosed in various parts of the country; but in one instance, in chicks, it was impossible, with the means at the disposal of the Government Veterinary Laboratory, to identify definitely the causal organism, and cultures were forwarded to the Salmonella Institute, Copenhagen, for further examination. Of five outbreaks in ducklings, four were due to *Salmonella aertrycke* and one to *S. enteritidis;* and in four outbreaks where chicks were involved, two were due to *S. enteritidis*, one to *S. aertrycke*, and one to *S. muenchen.*

226. The first outbreaks of *Solmonella pullorum* in chicks hatched from imported eggs was recorded and deal with. The affected hatch and in-contact stock were destroyed, and premises thoroughly disinfected. No fresh cases were recorded on the same farm.

Baby-Chick Infections.

227. Apart from salmonella infection referred to above, coccidiosis, chill, a non-specific bacterial infection, navel-ill, perosis, as well as a few undiagnosed conditions causing high mortality in chicks and ducklings, were reported or detected. In each case the necessary advice was given in order to reduce mortality as far as possible.

Rabbit Diseases.

228. Cases of coccidiosis, snuffles, keratitis, and eczema, were treated. An outbreak of salmonella infection due to *S. aertrycke* was diagnosed in rabbits for the first time in this country. Destruction of all rabbits was ordered, rigid disinfection of the premises carried out, and all villages and settlements in the vicinity were advised of the necessity of taking active steps regarding the destruction of rats and mice.

Bee Diseases.

229. Forty specimens of comb were received at the Government Veterinary Laboratory, seventeen of which proved to be European, and nineteen American, foulbrood. Infected colonies of bees were destroyed and hives disinfected. Apiaries were examined regularly with a view to detecting disease, giving the necessary advice, and applying control measures.

ANIMAL QUARANTINE STATIONS.

230. The performance of one of the most important functions of the Veterinary Service, namely, the prevention, by means of quarantine on the frontiers, of the introduction of animal disease into the country was frustrated by the prevailing lack of security. During the summer of 1938, a number of land-frontier animal quarantine stations was destroyed by saboteurs, and towards the end of the summer it was necessary to close down temporarily most of the animal quarantine stations situated on the northern, eastern, and southern frontiers of the country. Only Samakh and Ras en Naqura animal quarantine stations continued to function. The adverse effects of this unavoidable measure are obvious, and one must now depend on good luck for the country to remain free from serious epidemics, as many thousands of animals are now entering Palestine without any supervision. It should only be hoped that this unsatisfactory state of affairs will not last long and that it will be possible to resume in the near future activities at all animal quarantine stations.

231. Imports of slaughter cattle by sea route decreased from some 20,000 head during 1937-38 to 12,700 during 1938-39, and Rumania continued to be the main source of supply. On the other hand, a considerable increase in the importation of cattle is to be recorded from Iraq 15,000 head were imported during the year under review as compared with some 2,000 head during the preceding twelve months. According to current legislation, cattle from Iraq are consigned by rail direct from Tell Kutchuk, Syria, near the Syro-Iraq frontier, to Samakh railway station, in Palestine, wherefrom they are escorted by quarantine personnel to the animal quarantine station established at Samakh.

232. It has already been mentioned that several consignments of cattle arriving from European countries were found, on examination aboard vessels, to be affected with foot-and-mouth disease; and suitable action was taken to prevent the introduction of the European type of this disease into the country. A list of rules promulgated during the year, in connection with animal quarantine control is shown in the following table:—

Table XVI.

Rules made under the Animal Diseases Ordinanace and Promulgated During the Year 1938-39.

Description of Rules	Palestine Gazette	
	No. of gazette	Date
(1) Prohibiting the importation of carcasses from European countries	771	31.3.38
(2) Prohibiting the importation of cattle from Syria, the Lebanon, and Trans-Jordan	771	31.3.38
(3) Prohibiting the importation of cattle from Poland	774	14.4.38
(4) Regulating the importation of slaughter cattle from Europe via Egypt	788	8.6.38
(5) Prohibiting the importation of cattle from Denmark, Hungary, Poland, Syria, the Lebanon, and Trans-Jordan	788	8.6.38
(6) Prohibiting the importation of cattle from Yugoslavia	797	14.7.38
(7) Amending the rules which prohibit the importation of carcasses from European countries (published in Palestine Gazette No. 771 of 31.3.38)	797	14.7.38
(8) Amending the Animal Products (Importation and Exportation) Rules	800	21.7.38
(9) Prohibiting the importation of cattle from Egypt	801	11.8.38
(10) Amending the rules which prescribe the conditions for the importation of cattle from Iraq	809	25.8.38
(11) ditto	811	1.9.38
(12) Amending the rules which prescribe the conditions applicable to the importation of poultry	818	29.9.38
(13) Prohibiting the importation of cattle from Rumania	825	13.10.38
(14) Prohibiting the importation of cattle from Turkey	832	27.10.38
(15) Prohibiting the importation of cattle from Lithuania	838	10.11.38
(16) Withdrawing the prohibition to import cattle from Denmark, Hungary, Poland, Yugoslavia, Rumania, Lithuania, and Turkey	844	1.12.38
(17) Emergency rules prescribing conditions applicable to slaughter-cattle imported from European countries affected with foot-and-mouth disease	844	1.12.38
(18) Prescribing that cattle from Bulgaria may be imported subejct to the Emergency Rules published in Palestine Gazette No. 844 of 1.12.38	849	22.12.38
(19) Amending the general provisions of the Animal-Quarantine Rules	849	22.12.38
(20) Prohibiting the importation of sheep and goats from Rumania and Bulgaria	856	12.1.39
(21) Prescribing that cattle from Greece may be imported subject to the Emergency Rules published in Palestine Gazette No. 844 of 1.12.38	859	26.1.39
(22) Prescribing the conditions for the transport of meat from Haifa to Jerusalem and other towns	863	9.2.39
(23) Prohibiting the importation of sheep and goats from Switzerland, Hungary, and Greece	872	16.3.39
(24) Order declaring salmonella infection in rabbits and poultry a 'disease' within the meaning of the Animal Diseases Ordinance	875	30.3.39

233. There was a general decrease in the imports of other classes of stock as indicated below; one of the reasons being that most of the frontier animal quarantine stations did not function during th latter part of the year under review.

TABLE XVII.

IMPORTS OF LIVESTOCK OTHER THAN CATTLE DURING THE YEAR 1938-39.

Description	Imports 1937/38	Imports 1938/39
	Head	*Head*
Horses, mules, and donkeys	1,430	740
Camels	19,500	15,600
Sheep and goats	342,000	153,000

234. A further decrease in imports of poultry is to be recorded. 790.700 birds were imported as compared with 1,041,000 in the preceding year. Of these, 558,600 were imported by sea route from Rumania. There are four poultry-quarantine premises at Haifa where imported poultry are detained for six days in quarantine. Numerous cases of fowl cholera were detected during the year among such poultry; the diseased and in-contact birds were disposed of by slaughter and the premises suitably disinfected.

ANIMAL HUSBANDRY.

235. According to the last animal enumeration made in July, 1937, there were in the country 175,000 cattle, 209,000 sheep, 361,000 goats, 20,000 horses, 9,000 mules, 92,000 donkeys, 28,000 camels, and 2,660,000 poultry. No enumeration has since been made, but it is considered that the number of the various classes of livestock remained stationary.

236. The estimated annual local production and consumption of meat and meat products, dairy produce, poultry, and eggs, is given in the following table:—

TABLE XVIII.

ESTIMATED PRODUCTION AND CONSUMPTION OF MEAT AND MEAT PRODUCTS, DIARY PRODUCE, POULTRY, AND EGGS, DURING THE YEAR 1937.

Description	Production	Consumption
Meat and meat products (in tons)	9,500	22,500
Dairy produce and milk (expressed in tons of liquid milk)	115,700	207,400
Poultry (in thousands)	2,250	3,500
Eggs (in thousands)	108,000	201,000

237. The scarcity of natural pasture areas and the ever-increasing intensive cultivation of agricultural lands are limiting factors to any effort made towards increasing the livestock of the country. Although demand exceeds local production, Palestine will always have to depend on imports of live food-animals and frozen meat to supplement its requirements in meat and meat products.

238. The progress of the dairy industry has suffered a set-back mainly owing to the economic depression resulting from the continued disturbed conditions of the country. As a matter of fact, a fair number of dairy cows has been sold for slaughter during the year under review. The poulty industry has, on the other hand, made further progress; and the annual egg-production on modern poultry farms alone is approaching the fifty-million mark. Bee-keepers have not extended their apiaries. The honey crop was generally satisfactory, and some 400 tons of honey were extracted, 50 tons of which were exported while the remainder was disposed of locally.

239. Assistance to stock owners to improve their stock and to increase productivity thereof was afforded in various ways such as free service, by first-class sires, of female stock brought for the purpose to the Government Stock Farm at Acre; distribution of selected sires in districts during the breeding season; sale of selected sires of various classes of stock to *bona fide* breeders, at nominal prices; payment of premiums to owners of selected village bulls and jackasses used for serving the female stock of the respective villages; and castration of village male scrub stock.

240. The services of the following stud animals were placed at the disposal of stock-breeders who brought their female stock to the Government Stock Farm: four Lebanese bulls, five Arab and one Highland Pony stallions, four Cyprian and two Damascus jackasses, and one Large White and one Middle White boar.

241. The under-mentioned animals were stationed in different districts or issued on loan to farmers in April, 1938:—

Kind	Breed	Number
Bulls	Lebanese	36
	Kerry	5
	Guernsey	1
Stallions	Arab	1
	Highland Pony	1
Jackasses	Cyprian	3
	Damascus	2
Billy goats	Damascus	3
Rams	Karakul	2

242. The following services were recorded during the year under review:—

Bulls	1,675
Stallions	158
Jackasses	210

243. A considerable number of breeding animals was sold during the year for breeding purposes at low prices. Details regarding the various classes of stock and the number sold in each case are given below.

Kind	Breed	Number
Bulls	Lebanese	35
	Boaz	2
	Kerry	5
Cows	Lebanese	12
	Boaz	2
	Kerry	1
Rams	'Awasi	26
Ewes	'Awasi	115
Jackasses	Damascus	2
Billy goats	Damascus	17
	Mamber	65
Female goats	Damascus	54
	Mamber	86
Sows		53
	Total	476

244. Premiums were given, as in past years, to the value of £P.438 in respect of 73 selected and approved village bulls; all other bulls in those villages where premium bulls have been stationed were castrated. In addition, premiums to the value of £P.90 were awarded to owners of 20 donkeys approved for the improvement of mule- and donkey-breeding.

245. Details of the various breeds of cattle, sheep, goats, and other classes of stock, maintained at the Government Stock Farm at Acre were given in the report for the preceding year. The same breeds were maintained during the period under review, and drastic culling was effected as already mentioned in paragraph 173 of this report.

246. The following quantities of hatching eggs and breeding stock were sold to poultry farmers at production-cost prices during the year under review:—

Hatching eggs	30,362
Day-old chicks	12,718
Four-to-six-week-old chicks	48
Breeding poultry	2,407
Rabbits	190
Bee swarms	183

247. An officer of the Veterinary Service acts as the official milk-recorder of the only milk-recording society in the country, which was organised some four years ago. Over 2,500 cows distributed in twenty-three settlements are milk-recorded, and the results achieved are most encouraging.

248. Duty-free sugar to the amount of 262 tons was sold to bee-keepers during the summer and autumn of 1938 with a view to enabling them to feed their bee colonies liberally during the winter.

J. M. SMITH,
Chief Veterinary Officer.

Jerusalem, May, 15, 1939.

REPORT

BY THE

ACTING CHIEF FISHERIES OFFICER

FOR THE YEAR 1938-39

(April 1, 1938, to March 31, 1939)

SECTION V.

GENERAL REVIEW.

249. The year under review has been marked by frequent set-backs to the fishing industry. The wide interest displayed and the ambition shown by various individuals and bodies to invest capital for improvement and working in a larger field of operations have, in most cases, been held in abeyance until such time as security conditions improve. The lack of normal facilities for obtaining credit has been largely responsible for either a curtailment of activities of dissolution and liquidation of newly-established ventures. Inclement weather, experienced during December, 1938, January and February, 1939, was responsible for the poor winter fishery.

250. Other drawbacks, no less in importance, are lack of normal means of transport, imposition of curfews in the markets, and inability to maintain a regular distribution of the catch throughout the year, owing to the disturbed state of the country. In fact, the conditions under which fish is bought, sold, and distributed, have an important effect on the fishermen's operations. The problems of distribution cannot therefore be dissociated from the problems of production.

251. Serious though all these conditions were in the arrest of development in new directions, yet they should not represent a dark picture of the industry. Distinctive from foreign fishermen, local fishermen showed gratifying activities in areas where they were able to fish undisturbed; this led to production maintaining a fairly satisfactory level.

PRODUCE OF THE FISHERIES.

252. The aggregate landings of fish during the year under review amounted to about 1,678 tons, valued at approximately £P.55,000, and were made up as shown in the following table:—

TABLE XIX.

LANDINGS OF FISH DURING THE YEARS 1937-38 AND 1938-39 RESPECTIVELY.

Categories	Year	Landings	Percentage based on total landings	Value
		Kgs.	%	£P.
(a) Marine fish landed by local fishermen	1937-38	937,504	55	39,020
	1938-39	1,165,758	69	40,532
(b) Fresh-water fish landed by local fishermen	1937-38	303,194	18	7,564
	1938-39	293,744	18	7,408
(c) Total landings by local fisherman	1937-38	1,240,698	73	46,584
	1938-39	1,459,502	87	47,940
(d) Marine fish landed by foreign fishermen	1937-38	458,146	27	13,037
	1938-39	218,333	13	6,886
(e) Total landings of marine fish by local and by foreign fishermen	1937-38	1,395,650	82	52,057
	1938-39	1,384,091	82	47,418
(f) Grand total of all categories fish landed	1937-38	1,698,844	100	59,621
	1938-39	1,677,835	100	54,826

253. Landings by foreign fishermen show a decrease of 52 per cent. when compared with last year and were the lowest recorded since 1934-35. It is worthy of mention, however, that the apparent increase of landings by the inshore local fishermen, as distinct from those of the deep-sea trawlers and inland waters, caused a quantitative increase for the year 1938-39 reaching, within $2\frac{1}{2}$ tons, the record figure of 1935-36 and recording the highest percentage ever attained by local fishermen. On the other hand, although the total production of lake fisheries showed a decrease of about $9\frac{1}{2}$ tons they nevertheless maintained the same percentage of the preceding year.

Species of Fish.

254. The failure of deep-sea trawl fisheries to maintain normal production caused a marked change in the relevant abundance of fish species, particularly in respect of *Sultan Ibrahim* (red mullet: *Mullus surmuletus*), *Jarbiden* (red bream: *Pagellus erithrynus*), *Samakh Musa* (sole: *Solea solea*), and *Saqqaya* (hake: *Merluccius merluccius*), which normally constitute the highest percentage in the hawls of trawlers.

255. During the period under review, however, sardines formed the largest catch; the total catch being 495 tons, or 35.7 per cent. of the total sea-fish production. The greatest quantity of this species was captured by the *Maltash* method (anchored gill-net) in the southern district during the last quarter of the year.

256. The following table indicates the percentages of the main fish species landed during the year under review as compared with the year 1937-38:—

TABLE XX.

SPECIES OF FISH EACH OF WHICH CONSTITUTED NOT LESS THAN ONE PER CENT. OF THE TOTAL LANDINGS OF MARINE- AND LACUSTRINE-FISH RESPECTIVELY DURING THE YEAR 1938-39.

Vernacular name (Arabic)	English name	Scientific name	Precentage based on total landings of marine & lacustrine fish	
			1938—39	1937—38
(a) Marine fish			%	%
Sardina	Sardine family	Clupidae	35.7	13.1
Sultan Ibrahim	Red Mullet	Mullus surmulletus	13.6	25.2
Musqar	Maigre	Sciaena aquila	10.0	8.7
Dawaqir	Sea perch	Epinephelus sp.	8.5	9.6
Luqquz	Jaffa cod	Epinephelus sp.		
Buri	Grey mullet family	Mugilidae	5.6	6.3
Ghunbar	Skipjack	Pomatomus saltatrix	3.7	5.9
Jarbiden	Red bream	Pagellus erythrinus	3.6	5.8
Sarghus	Sea bream	Diplodus sargus	2.4	2.3
Kalb el Bahr	Smooth hound	Squalus acanthias	2.3	1.3
Marmur	Sea bream	Pagellus mormyrus	1.6	2.0
Farriden	Sea bream	Pagrus ehrenbergi	1.5	1.6
Bursh	Ray fishes and skate	Raiidae	1.0	3.0
			89.5	84.8

Vernacular name (Arabic)	English name	Scientific name	Percentage based on total landings of marine & lacustrine fish	
			1938—39	1937—38
(b) Fresh-water fish			%	%
Sardina	Bleak	Alburnus sellal	38.0	34.1
Karsin	Barbel	Barbus longiceps	20.7	21.0
Musht Abyad	St. Peter's fish	Tilapia galilaea	13.0	15.0
Qishra	Barbel	Barbus canis	12.5	8.0
Musht 'Uqqar	St. Peter's fish	Tilapia zilii	5.3	10.0
Musht Marmur	St. Peter's fish	Tilapia magdalanae	3.7	3.0
Haffafi	—	Varicorhinus damascinus	2.2	3.0
Barbut	Cat-fish	Clarias lazera	1.5	2.0
Musht Lubbad	St. Peter's fish	Tilapia nilotica	1.0	1.0
			97.9	97.1

Methods of Capture.

257. The quantities and values of fish produced by the various fishing methods during the year under review, as compared with 1937-38, are shown in the following table:—

TABLE XXI.

QUANTITIES AND VALUES OF FISH LANDED BY EACH FISHING METHOD DURING THE YEARS 1938-39 AND 1937-38 RESEPECTIVELY.

Fishing method	1938-39				1937-38			
	Weight		Value		Weight		Value	
	Kgs.	%	£P.	%	Kgs.	%	£P.	%
Jarf (Shore seine)	371,515	27	13,525	29	348,930	25	13,825	27
Lines	173,041	12	8,939	19	187,971	13	9,455	18
Foreign trawlers	218,333	16	6,886	15	458,146	33	13,036	25
Bashlula (Gill-net of larger mesh)	57,672	4	3,160	7	73,257	6	4,209	8
Maltash (Gill-net)	221,500	16	3,495	7	32,083	2	684	1
Cast nets	68,491	5	3,591	7	61,784	4	3,113	6
Lampara nets	158,527	11	2,628	6	63,887	5	1,174	2
Tahwiq (Seine)	36,017	3	1,986	4	40,104	3	2,108	4
Mubattan (Trammel)	40,409	3	2,042	4	28,278	2	1,658	3
Local trawlers	38,586	3	1,166	2	101,230	7	2,795	6
(a) Total marine fisheries	1,384,091	100	47,418	100	1,395,650	100	52,057	100
Jarf (Shore seine)	62,148	21	2,694	36	86,923	29	3,136	41
Mubattan (Trammel)	124,986	42	2,503	34	88,795	29	3,085	41
Cast nets	33,297	11	1,477	20	76,889	25	734	10
Lines	37,907	13	634	9	11,872	4	461	6
Sardine net	34,164	12	70	0.9	38,715	13	148	2
Bashlula (Gill-net of larger mesh)	1,242	1	30	0.1	—	—	—	—
(b) Total Lacustrine fisheries	293,744	100	7,408	100	303,194	100	7,564	100
Total Production	1,677,835	—	54,826	—	1,698,844	—	59,621	—

Deep Sea Fisheries.

258. Deep sea fisheries made up 31 per cent. of the total marine-fish production and 36 per cent. of the value as shown in the following table:—

TABLE XXII.

DEEP-SEA FISHERIES DURING 1938-39.

Description	Percentage based on total catch of marine fish	
	Weight	Value
	%	%
Foreign trawlers	16	15
Local trawlers	3	2
Long lines (local)	12	19
Total percentage	31	36

259. Trawl fisheries failed to maintain normal production chiefly owing to limited activities of foreign and local trawlers, by reason of the enforcement of fisheries legislation limiting the minimum size of fish which may be landed and the minimum size of net-mesh to be used. Five of the eighteen foreign trawlers which renewed their permits to land fish have changed gear to comply with the said legislation and have operated on a limited scale. The total number of boat-days for the year under review amounted to 528 as against 1,404 during 1937-38.

260. The activities of local trawlers were likewise handicapped by the present state of insecurity, and lack of credit facilities caused shortage of supply of fishing gear, thus reducing the actual number of locally-registered trawlers on commission during the year from eight to two.

261. The deep sea lining fleet, in spite of most inclement weather, maintained a production approximately equal to that of 1937-38.

Offshore Surface Fisheries.

262. The offshore surface fishery has completed its second year of existence since its regulation as a special class. The effective results reached by fishermen of the nothern district through the use of Lampara nets during the 1937-38 season encouraged the fishermen of the southern district to give Lampara nets a fair trial. Four such nets were accordingly purchased by Jaffa fishermen thus bringing the total number of Lampara nets in use to twelve ,viz., Haifa—6, Jaffa—4, Acre—1, and Ez Zib—1.

263. Although the activities of the Lampara-net fishermen were restricted to to areas within the immediate neighbourhood of Haifa and Jaffa, the total quantity landed showed an increase of 40 per cent. over last year's landings.

264. The total quantity landed was 158,527 kilogrammes—all sardines—valued at £P.2,628, or 11 and 6 per cent. respectively of the total quantity and value of sea fish landed during the year. The average gross landings and earnings per boat working day are shown in the following table:—

TABLE XXIII.

AVERAGE GROSS LANDINGS AND EARNINGS PER BOAT WORKING DAY DURING 1938-39.

Centre	Landings	Value
	Kilogrammes	£P. Mils
Haifa	437	6.218
Jaffa	201	4.616

Inshore Fisheries.

265. The inshore fishery made remakable progress during the year under review when compared with 1937-38. The produce is estimated at 58 per cent. of the total weight of marine fish landed during 1938-39 and 58 per cent. of the total value, as against 42 and 49 per cent. respectively during 1937-38.

266. The increased percentage of earnings—58 per cent. of the total value—is not in any way relative owing to the decline in the average prices paid for bulk quantities of sardines and other fish produced in remote fishing centres, which, in view of irregular transport facilities, had to be sold *in situ* often at reduced prices.

267. The percentages of production and value obtained by the different methods of fishing are shown in the following table:—

TABLE XXIV.

Fishing method	Percentage based on total production of marine fisheries	
	Weight	Value
	%	%
Maltash (Gill nets)	16	7
Jarf (Shore seine)	27	29
Mubattan (Trammel)	3	4
Bashlula (Gill net of larger mesh)	4	7
Cast nets	5	7
Tahwiq (Seine)	3	4
Total inshore fisheries	58	58

Lacustrine Fisheries.

268. Statistics relating to the capture of first-class marketable fresh water species, namely, *Karsin*, *Qishra*, *Musht Abyad*, and *Musht Lubbad*, show an apparent decline when compared with catches in previous years. This is largely due to overfishing of the Sea of Galilee during the spawning season in particular.

269. While an increase of 10 tons is noted in the total catch from the Sea of Galilee, a decrease of 21 tons is noted in the total catch from Lake Hula.

270. The increase of 4 per cent. in the total catch from the Sea of Galilee is due to the large quantities of bleak caught and not to first-class marketable species, It is felt, however, that the Sea of Galilee is overfished, and the total production of 260 tons from a water area of approximately 165 square kilometres is to be regarded as below normal.

271. The large decrease (40 per cent.) in the total catch from Lake Hula is explained by the fact that fishing activities in that area were seriously curtailed owing to lack of security.

Ports of Landing.

272. The total quantity and value of fish landed by local and foreign fishermen at each port during the year under review, as compared with 1937-38, are shown in the following table:—

TABLE XXV.

LANDING OF MARINE AND LACUSTRINE FISH BY LOCAL AND BY FOREIGN FISHERMEN RESPECTIVELY, AT EACH PORT OF LANDING DURING 1938-39 AS COMPARED WITH 1937-38.

Fishery centre	Total landings of fish during 1937–38			Total landings of fish during 1938—39			Landings of fish by local fishermen during 1938—39		Landings of fish by foreign fishermen during 1938—39	
	Weight	Percentage based on total production	Value	Weight	Percentage based on total production	Value	Weight	Value	Weight	Value
	Kgs.	%	£P.	Kgs.	%	£P.	Kgs.	£P.	Kgs.	£P.
Northern Area (Marine fish) : —										
Haifa	438,928	25.9	15,532	536,307	31.9	16,186	422,936	13,334	113,371	2,852
Acre	52,854	3.1	2,555	60,436	3.6	3,115	60,436	3,115	—	—
Tantura	14,242	0.8	755	14,651	0.9	671	14,651	671	—	—
Ez Zib	6,894	0.4	364	6,444	0.4	327	6,444	327	—	—
Southern Area (Marine fish) : —										
Jaffa	704,418	41.5	26,318	406,249	24.2	17,426	301,287	13,392	104,962	4,034
El Jura	116,166	6.8	4,175	214,972	12.8	5,493	214,972	5,493	—	—
Gaza	62,148	3.7	2,358	145,032	8.7	4,200	145,032	4,200	—	—
Eastern Area (lacustrine fish) : —										
Tiberias	250,558	14.7	6,726	261,833	15.6	6,816	261,833	6,816	—	—
Lake Hula	52,636	3.1	838	31,911	1.9	592	31,911	592	—	—
Total landings of marine and lacustrine fish	1,698,844	100	59,621	1,677,835	100	54,826	1,459,502	47,940	218,333	6,886

273. In commenting briefly on fish production during the year in respect of each port of landing it will be observed that El Jura and Gaza fishing centres made remarkable progress and that Haifa and Acre followed closely. Landings of fish at Tantura and Ez Zib maintained the same level as that of 1937-38. The landings at Jaffa, however, showed an appreciable decline; this is due to the disturbed state of the town and to the frequent imposition of curfew.

Fishermen.

274. The following table shows the number of licensed fishermen by categories and fishing centres. Of the total number of fishermen licensed during 1938-39, it is estimated that 5 per cent. were newly-licensed fishermen. The coincidence of having almost the same number of licences as that of 1937-38 with 5 per cent. new licensees is explained by the fact that several of the Tantura, Gaza, and Acre fishermen to whom fishing is not a whole-time trade failed to renew their licences owing to the current circumstances.

TABLE XXVI.

LICENSED FISHERMEN DURING 1938-39 AS COMPARED WITH 1937-38.

Fishery centre	Total number of licensed fishermen 1937—38	Licensed fishermen during 1938—39				
		Total	Owners		Employees	
			Wholetime	Part time	Wholetime	Part time
Northern Area: —						
Acre	107	68	42	2	23	1
Haifa	336	415	138	11	250	16
Tantura	74	23	14	4	5	—
Nathanya	20	7	5	—	2	—
Southern Area: —						
Tel Aviv	18	49	39	5	5	—
Jaffa	252	266	182	20	45	19
El Jura	147	140	119	2	19	—
Gaza	113	95	76	1	16	2
Eastern Area: —						
Tiberias	126	145	67	5	72	1
Lake Hula and the Jordan	22	8	3	5	—	—
Total	1,215	1,216	685	55	437	39

Fishing Vessels.

275. The construction, in Palestine, of large fishing vessels fitted with marine engines is reported for the first time; two trawlers and two motor launches were built locally and commissioned during the year under review. Of the 35 newly-registered fishing vessels, 18 sail and row-boats, 2 trawlers, and 2 motor launches, were constructed locally; 12 vessels were re-registered, having changed ports; and one trawler was purchased from a foreign company.

276. It is regretted, however, that, owing to the present circumstances and in the absence of special legislation for the licensing of fishing vessels, the recording of the exact number of vessels employed exclusively for fishing is rendered very difficult.

277. The following table indicates the number of boats registered as fishing vessels and the areas in which they operate:—

TABLE XXVII.

PORTS OF REGISTRY AND AREAS OF OPERATION OF FISHING VESSELS DURING 1938-39.

Port of registry	Areas of operation	Kind of vessels	
		Sail or row	Motor
Acre	Acre	38	—
	Ez Zib	2	—
Haifa	Haifa	109	7
	Caesarea	7	—
	Tantura	5	—
	Athlit	1	—
	Nathanya	1	—
Jaffa	Jaffa	135	8
Gaza	Gaza	35	—
	Deir el Balah	1	—
	Khan Yunis	1	—
	Hirbya	3	—
	El Jura	33	—
Tiberias	Tiberias & Samakh	52	—
	Hula	10	1
	Total	433	16

Casualties and Loss of Life.

278. The following casualties occurred during the year under review:—

May, 1938: Motor launch collided with a steamer N.W. of Jaffa; the former sustained serious damage.

September, 1938: One fisherman was killed and two others were seriously injured while fishing by means of explosives.

Gaza fishery hut was burnt by unknown persons; nets to the estimated value of £P.92 were totally destroyed.

Fisheries sub-office at El Jura was set on fire.

November, 1938: One local trawler drifted ashore near Jaffa owing to stormy seas.

Nets and fishing gear to the value of £P.500, the property of a Jura fisherman, were maliciously set on fire.

January, 1939: Four *Bashlulas* (gill-nets) were lost owing to stormy weather near Haifa.

March, 1939: One *Bashlula* net was lost through stormy weather.

Imports and Exports of Fish.

279. The figures obtained from the Department of Customs, Excise and Trade, regarding the imports and exports of fish are given in the following table. Imports of all categories of fish have increased from 5,126 tons during 1937-38 to 5,492 tons during 1938-39. This increase is noted mainly in the category of brined, dry salted, and smoked fish, and to a lesser degree in canned fish. The apparent decrease in imports of fresh and frozen fish had a direct effect on the exports of fish under this category, which dropped from 40½ tons (1937-38) to 9 tons (1938-39).

TABLE XXVIII.

IMPORTS AND EXPORTS OF FISH DURING THE YEARS 1938-39 AND 1937-38 RESPECTIVELY.

Description	1938-39		1937-38	
	Quantity	Value	Quantity	Value
	Kgs.	£P	Kgs.	£P
Imports :—				
(a) In tins	1,180,286	50,601	1,090,756	48,749
(b) Brined, dry-salted and smoked	2,445,258	51,789	2,082,019	46,030
(c) Fresh and frozen	1,866,642*	72,785*	1,953,562**	77,095**
Total imports of fish	5,492,186	175,175	5,126,337	171,874
Total exports of fish (fresh and frozen)	8,976	265	40,544	1,476
Excess of imports over exports	5,483,210	174,910	5,085,793	170,398

* Includes 218,933 kilogrammes of fish, valued at £P 8.372, landed by foreign trawlers.

** Includes fish landed by foreign trawlers since September, 1937,

280. The principal countries from which fresh fish is imported into Palestine are Egypt, Syria, and Iraq. While a comparatively heavy decrease and a slight decrease are noted in the case of imports from Egypt and Syria respectively, an appreciable increase took place in imports from Iraq, as shown by the following table :—

TABLE XXIX.

IMPORTS OF FISH, BY COUNTRY OF ORIGIN DURING THE YEARS 1938-39 AND 1937-38 RESPECTIVELY.

Country of origin	1938-39		1937-38	
	Quantity	Value	Quantity	Value
	Kgs.	£P	Kgs.	£P
Egypt	488,430	19,649	774,486	32,874
Iraq	672,460	24,703	525,389	21,410
Syria	378,459	14,408	387,464	12,438

Markets and Prices.

281. The state of insecurity coupled with lack of normal transport facilities, especially throughout the winter fishing season of 1938-39, rendered the distribution of fish to main markets a very difficult process. Gaza and El Jura fishermen attempted to revert to sea transport but the attempt had soon to be abandoned because of the uncertainty of the Jaffa market which was often closed by curfew orders. Unfortunately, such interruptions led to striking fluctuations in the prices of fish. A close examination of the daily prices of fish at the various producing centres revealed that while fairly high prices were paid for second and third quality fish at main markets owing to scarcity of supply, first quality fish realised rather poor prices in minor markets because supply was greater than demand.

WORK OF THE FISHERIES SERVICE.

282. No expansion was effected, and the Fisheries Service has in consequence been maintained during 1938-39 on a basis similar to that of the preceding two years.

Protection of Fisheries.

283. The number of persons charged during the year under review for contravening the Fisheries Ordinance was 72 of whom 56 were convicted as compared with 222 persons charged and 159 convictions during 1937-38. The decrease in the numbers of persons charged and convicted is no indication that illicit fishing has declined during the year. It is chiefly due to the situation prevailing in the country coupled with the rigid restrictions of movement imposed by the military authorities. It should be mentioned, however, that the Fisheries Service with the present limited fishing field staff is not in a position to suppress illicit fishing even in normal times. The port and the marine police have rendered very valuable assistance towards the suppression of illicit fishing, for which the Fisheries Service is grateful.

Development of Fisheries.

Fishing Companies and Co-operative Societies.

284. Lack of normal credit facilities has affected adversely the development of the fishing industry. Fishing companies which were formed during the last two years and were hard pressed for immediate credit facilities to keep fairly balanced were forced either to liquidate or to curtail activities.

285. It has been the object of the Fisheries Service to foster amongst local fishermen the formation of co-operative societies. This endeavour has met a certain amount of success at El Jura and Tantura, but it is regrettable that here again such ventures had to be temporarily abandoned through lack of financial support.

Construction of Fishing Vessels.

286. The construction of large boats capable of being fitted with marine engines is one of the chief industrial developments so far achieved in Palestine. Two large vessels and two launches were constructed during the year.

Sponge Fishing.

287. The exclusive right to take sponges off the coast of Palestine has been awarded to Ogen Ltd., of Haifa. It is anticipated that operations will commence during the summer of 1939.

Fish Curing.

288. Successful results have been obtained from the smoking of Barbut (catfish: *Clarias lazera*) at Hula and the salting of sardines and bleak. The encouraging measure of success so far achieved in the early stages of the experiments will undoubtedly reflect favourably on the prices of sardines in particular and the daily earnings of fishermen in general.

Carp Culture.

289. The carp ponds established at Nir David, Beisan sub-district, early in 1938, have made such good progress in raising carp that an enlargement of the present scheme is contemplated by the settlers. The necessary plans have already been prepared and await final approval before construction can be started.

Improvement of Fishing Methods.

290. Experiments in the use of nets, conducted by the Fisheries Service, have led to the introduction of the *Bashlula* (larger-meshed gill-net) in the Sea of Galilee and the Lampara net in the southern part of the maritime coast.

291. As a result of demonstrations carried out by the Fisheries Service on inshore fishing with motor boats, local fishermen have acquired two motor launches.

292. Trials with inshore nets—*Mubattan* (trammel) and *Bashlula*—on a wider range than hitherto operated by local fishermen, are being conducted. The results obtained so far are encouraging.

Demonstration Fishing Boat.

293. The *Forerunner* carried out a more or less full programme of work during the year under review. She was mainly worked in co-operation with local fishermen with a view to investigating (a) long-line fishery north and south of Jaffa and off Caesarea, (b) the possibilities of developing an inshore fishery north of Nathanya, (c) trawl fishery off Tantura and Acre Bay, (d) sardine and mackerel fishery off Carmel, and (e) the possibilities of establishing a fishermen's settlement at Nahariya, Acre sub-district.

294. During the month of May, 1938, the *Forerunner* made her longest voyage when she visited the Gulf of Aqaba to investigate the fisheries there.

Fisheries Research.

Carp Culture Experiments.

295. The carp culture experiment which was begun in 1937 with the introduction of 100 three-month-old and 20 two year-old carp into 'Ein Et Tine fish-pond (near Tabigha) together with about the same number of indigenous fishes from the Sea of Galilee has been continued and extended during 1938-39. In October, 1938, five mother carp, two females (spawners) and three males (milters), were added to the pond and also five mother fish of each of the various indigenous fishes kept in the pond The carp and the indigenous species are being bred together in the pond for the purpose of studying the habits of each species during the spawning seasons of the others. The theory has been advanced that carp are cannibalistic-feeding on the fry of other species. Prior to March, 20, 1939, however, two indigenous species spawned in 'Ein Et Tina. Very close observation of the carp indicates that they molest neither the spawns nor the fry of other species. In the light of these and further observations carp might be considered in any scheme for restocking the Sea of Galilee.

296. The 'Ein Et Tina fish-pond has been improved during the year. Partitions of wire netting were built dividing the pond into three smaller ones, and a new pond was constructed. Carp are now isolated in the new pond which is to serve as their spawning area.

Indigenous Fresh-water Fishes.

297. The study of the spawning seasons and spawning grounds of indigenous fresh-water fishes was continued during 1938-39. It is expected that a map will shortly be prepared showing the localities of the various spawning grounds. Meanwhile, records of the spawning seasons are being kept.

Mackerel.

298. Investigations into the biology of the Palestinian mackerel (*Scomber scomber*) were started during the year and a preliminary report was submitted by Dr. Alfred Sklower, member of the Fisheries Committee, and communicated by the Chief Fisheries Officer to the Secretary General of the *Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée* Paris. This report was published as an appendix to Volume XI of the *Rapports et Procès Verbaux des Réunions*, September, 1938.

Fishermen's Charts.

299. The work of preparing a special fishermen's chart which was commenced during 1937-38 has now been concluded. Three sheets on a scale of 1: 100,000 for the area from Ras en Naqura to Rafa are now available. A similar chart for the Sea of Galilee is being prepared.

Sun-Fish (Orthagoriscus mola).

300. On the morning of February 20, 1939, an enormous sun-fish was landed for the first time in the history of the fishing industry in Palestine. It was caught by a Haifa fisherman in a *Bashlula* (larger-meshed gill-net), about 150 metres off the main breakwater, Haifa harbour. It weighed 975 kilogramms net, or 19 cwt. 21 lbs. It is believed, in the light of the lollowing measurements and aforementioned weight, that this sun-fish is the largest on record ever caught in the Mediterranean or any European waters. The following are the measurements of the fish caught:—

	metres.
(a) Length from anterior to most distant point of caudal fin	2.52
(b) Greatest height (half girth)	1.91
(c) From end of erected dorsal fin to end of erected anal fin	2.58
(d) Gape to anterior edge of eye	0.25
(e) Diameter of eye-ball	0.12
(f) Eye to opening of gill	0.23
(g) Eye to base of pectoral fin	0.37
(h) Mouth along middle line of belly to vent	1.95
(i) Length of dorsal fin	0.56
(j) Length of anal fin	0.86

301. The fish was well marked with horizontal bands of colour. The dorsal portion to a distance of about 30 centimetres below the crest on either side was greyish-brown. Below the dorsal area alternate bands of dark violet and white skin, three of each colour and each about 20 centimetres in width, terminated in a white belly area. The dorsal and anal fins had dull violet and reddish blotches The caudal fin was dull violet. The three white bands were formed of smooth tessellated skin; and the purple bands, of rough skin. All viscera of the fish were taken out The important parts were preserved in formalin and are now kept in the Fisheries Laboratory at Haifa; duplicate parts being kept at the Hebrew University, Jerusalem.

Licences and Revenue.

302. Details of revenue collected and the number of licences issued during the year 1938-39 are given in the following table :—

TABLE XXX.

LICENCES ISSUED AND REVENUE COLLECTED BY THE FISHERIES SERVICE DURING THE YEARS 1938-39 AND 1937-38 RESPECTIVELY.

Description	1938-39		1937-38	
	Number of licences issued	Revenue collected	Number of licences issued	Revenue collected
		£P. Mils		£P. Mils
General fishing licences	803	401 . 500	845	422 . 500
Special fishing licences	413	41 . 300	370	37 . 000
Exclusive fishing licences	1	— . 500	1	— . 500
Permits to land fish	10	5 . 000	26	13 . 000
Licences to take sponge	1	5 . 000	—	—
Miscellaneous receipts	—	13 . 320	—	4 . 570
Total	1,228	466 . 620	1,242	477 . 570

303. Compared with the year 1937-38, the revenue collected during the year under review fell by £P.10.950 mils while the number of licences issued shows a decrease of 14. The decrease in revenue is due to the drop in the issue of general fishing licences and permits to land fish.

Legislation.

304. The rules made under the Fisheries Ordinance during the year under review are enumerated in the following table :—

Table XXXI.

Fisheries Rules Published During the Year 1938-39.

Description	Palestine Gazette	
	No. of Gazette	Date
Fisheries (Amendment) Rules, 1938. (a) To allow trawlers not exeeding 40 feet in length overall to fish within the territorial waters of Palestine. (b) To allow the use of Lampara nets in conjunction with lights in a depth of water not less then 15 fathoms. (c) To waive restrictions imposed on the use of *Mubattan* and *Tahwiq* nets in certian areas of the Sea of Galilee.	793	7.7.38
Sponge Fishery (Amendment) Rules, 1938. Adjusting the fees chargeable for licences to take sponge.	811	1.9.38
Sponge Fishery (Amendment) Rules, (No. 2), 1938. To provide that no person may take sponges unless he is authorised to do so by a licence.	825	13.10.38
Fisheries (Amendment) Rules (No. 2), 1938. To provide that licences to take fish shall not cover the taking of sponges.	825	13.10.38

Haifa, May 15, 1939.

A. JUBRAN,
Acting Chief Fisheries Officer.

9165—600 Bks. 25-12-39